4-BAND RADIO/STEREO CASSETTE RECORDER

MODEL CRS-2104

SERVICE DATA

JUL./1978

SUPERSCOPE®
BY **marantz®**

SUPERSCOPE INC.
20525 NORDHOFF STREET CHATSWORTH, CALIFORNIA 91311-U.S.A.

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SPECIFICATIONS

GENERAL:

DIMENSIONS (W x H x D). . .15-7/16 x 9-3/16 x 4-15/16 in. (39.2 x 23.3 x 12.5 cm)
WEIGHT (with batteries) . . . . . 9 lbs., 4 oz. (4.2 kg)
POWER REQUIREMENT . . 110/220 V AC, 50 Hz, 18 W
Six "D" Size Batteries
External 9 V DC

NUMBER OF SEMICONDUCTORS:
- Integrated Circuits 8
- Field Effect Transistors 2
- Transistors 10
- Light Emitting Diodes 1
- Diodes 20

TERMINALS:
- Microphone x 2 . . . . . Plug Type: Mini
  Input Sensitivity: 0.25 mV (−72 dB)
  Impedance: 4.5 kΩ
- External Input x 2 . . . . . Plug Type: Mini
  Input Sensitivity: 55 mV (−25 dB)
  Impedance: 60 kΩ
- DIN Input . . . . . Plug Type: DIN
  Input Sensitivity: 20 mV
  Impedance: 40 kΩ
- DIN Output . . . . . Plug Type: DIN
  Output Level: 0.5 V (−6 dBV)
  Output Impedance: 2.5 kΩ
- External Speaker x 2 . . . . . Plug Type: Mini
  Output Power: 2.2 W x 2 (4 Ω) DC
- External FM Antenna x 1 . . . . Input Impedance: 75 Ω
- Stereo Headphone x 1 . . . . . Plug Type: Phone
  Impedance: 8 Ω
- AC Inlet x 1
- DC 9 V x 1
- Remote Control x 1

TAPE RECORDER SECTION:

TAPE . . . . . Philips Type Cassette Tape
RECORDING SYSTEM . . . . . 4-Track Stereo
AC Bias
ERASING SYSTEM . . . . . AC Erase
REW/FF TIME . . . . . 110 Seconds (C-60)
FREQUENCY RESPONSE . . . 125 Hz to 8 kHz (−5 dB)
SIGNAL-TO-NOISE RATIO . . . . . 42 dB
TAPE SPEED . . . . . 1-7/8 ips (4.8 cm/sec) ±3%
WOW AND FLUTTER . . . . . Less than 0.2% rms

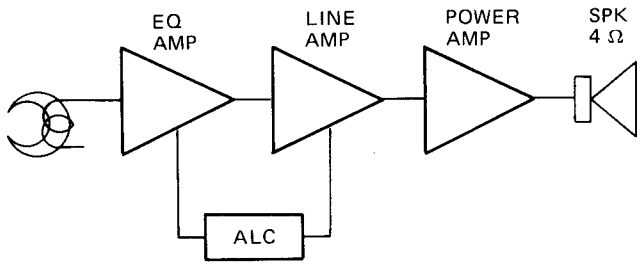
TUNER SECTION:

CIRCUIT SYSTEM . . . . . 4-Band FM/MW/SW/LW
Superheterodyne
FREQUENCY RANGE . . . . . FM: 88 to 108 MHz
MW: 525 to 1605 kHz
SW: 6 to 18 MHz
LW: 150 to 370 kHz
INTERMEDIATE FREQUENCY . . . . . FM: 10.7 MHz
MW/SW/LW: 455 kHz
ANTENNA . . . . . FM/SW: Telescopic Rod
MW/LW: Ferrite-rod
SENSITIVITY . . . . . FM: 6 μV (30 dB S/N)
MW: 600 μV/m (20 dB S/N)
SW: 150 μV/m (20 dB S/N)
LW: 900 μV/m (20 dB S/N)
SIGNAL-TO-NOISE RATIO . . . FM: 45 dB (Input 1 mV)
MW/SW/LW: 40 dB (Input 5 mV/m)
FM STEREO SEPARATION . . . . . 25 dB (Input 1 mV)

1. FEATURES

(1) Full IC Circuits Construction

- **Audio full-line three-IC stages**
  Each audio channel consists of three ICs: an equalizer amplifier having ALC, a line amplifier, and power amplifier. The power amplifier IC is made up of SEPP circuit that assures 2.2 W output power per channel with 9 V source. The audio full-line is illustrated below.



- **Quadrature-detection AM/FM and IF IC**
  The quadrature detection, which is the same as that of usual hi-fi tuners, provides quality tone with little distortion. The single hump tuning and S-curve alignment can be accomplished by adjusting two points only, to which 5 or more points in the previous circuit are reduced.
- **Low-voltage, PLL multiplex FM stereo IC**
  The present PLL (phase-locked loop) multiplex IC can be run by power voltage as low as 6 V for the first time as the source voltage for the tuner is decreased to 6 V through a ripple filter, while previous ICs requires 12-V power source for good channel separation, for stable, wide sound field. Alignment can be accomplished very easily by adjusting two semifixed controls only as compared with inductor adjustment in previous circuit.

(2) Large-Sized, Speaker System

The speaker, the 12-cm diameter of which is best in this class of tape recorder, produces lush, comfortable, dynamic sound.

(3) Large-Sized Tripple Meter

The easy-to-read, large-sized meter indicates a battery voltage in the tape playback operation, a tuning state in a radio program reception, or a VU in any recording operation.

(4) Matrix Stereo System

The main signal is mixed with the out-of-phase signal which is taken from the other channel and passed through a filter having a certain bandwidth. This makes the reproduced sound by far deeper and wider than usual, thus providing rather high stereophonic effect.

(5) Powerful Output

The output power is as high as 4.4 watts, 2.2 watts for each channel at 4-Ω load.

(6) Variable Sound Monitor

In recording a radio program, the sound volume and tone can be freely changed without affecting the recording level.

(7) Total Shut-off Mechanism

The tape is automatically stopped at the end in the playback, fast forward, or even recording mode of operation.

(8) Cue and Review Mechanisms

(9) One-Touch Recording System

Recording can be made by pressing the REC button only.

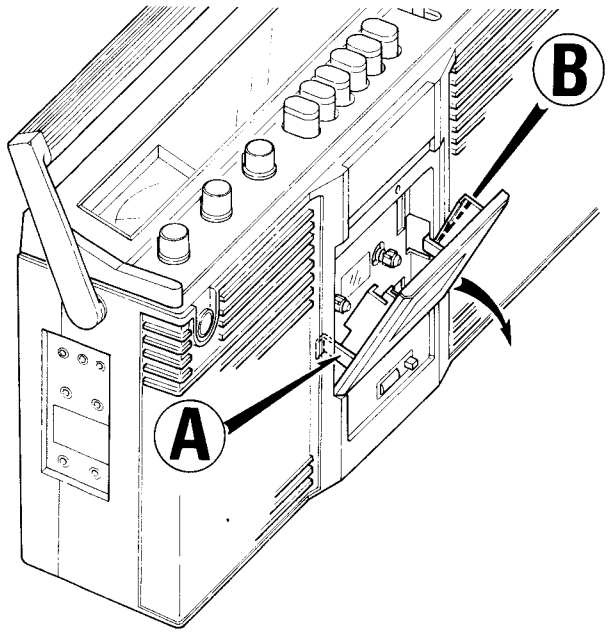
(10) Large-Sized Chassis

The large-sized chassis facilitates easy adjustment at any point when the casing is removed. The number of screws are minimized and the power transformer, external jacks, meter, and similar devices are fit-assembled so that maintenance and service are very easy.

2. DISASSEMBLY

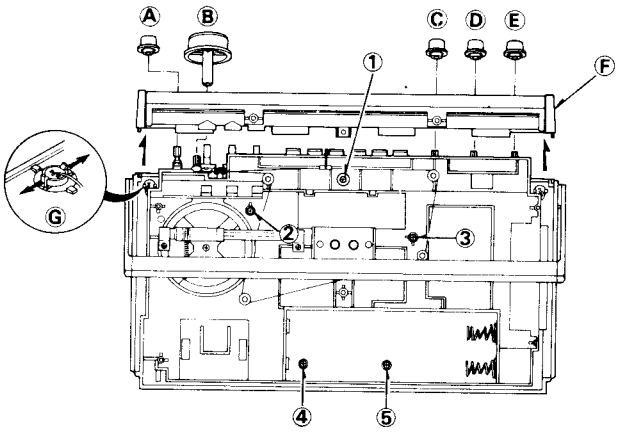
2.1 REMOVING THE CASSETTE COMPARTMENT LID

While pressing the point A and B in the arrow direction, pull the lid toward as shown. The lid will be removed.



2.3 REMOVING THE CHASSIS

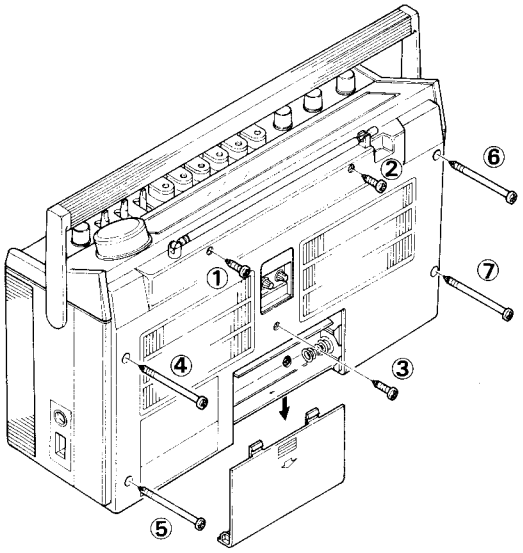
1. Remove the five knobs A through E.
   - A . . . . . BAND
   - B . . . . . TUNING
   - C . . . . . VOLUME
   - D . . . . . BALANCE
   - E . . . . . TONE
2. Remove the five screws 1 through 5.
3. The top escutcheon (F) will be removed.
4. Remove the two condenser microphones (G) from the front side by opening the stoppers toward the arrow direction.
5. Then the chassis will be removed.



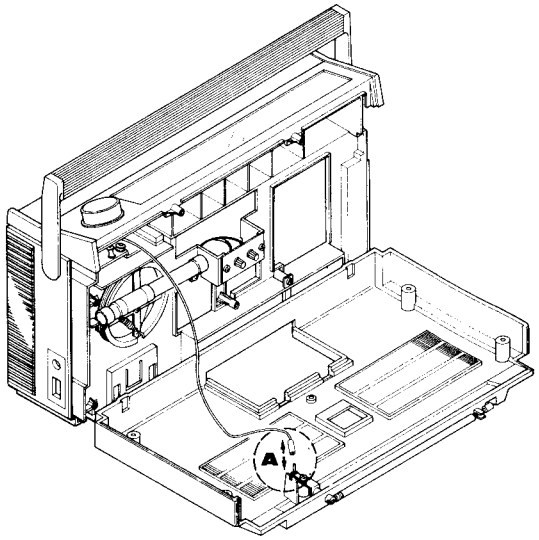
NOTE:
The knobs of the FUNCTION, MODE, and AFC switches should be replaced after putting the inside white kips on the switch schafts.

2.2 REMOVING THE BACK COVER

1. Open the battery compartment cover by depressing the finger grip and pulling down. Remove the seven screws 1 through 7.

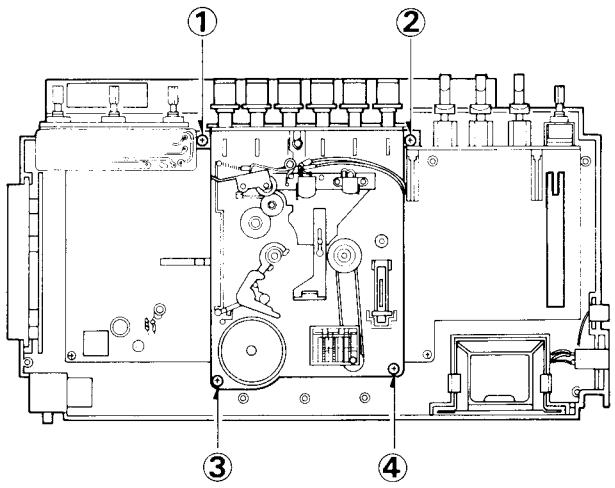


2. Disconnect the antenna lead connector A, and the back cover will come off the casing.



2.4 REMOVING THE MECHANICAL ASSEMBLY

1. Remove the four screws 1 through 4.
2. Disconnect the lead connector from:
   a) REC/PLAY HEAD, b) ERASE HEAD,
   c) MOTOR SWITCH, d) MOTOR



3. SERVICE GUIDE

3.1 BATTERY VOLTAGE

Many customers often determine that the set is faulty when malfunctioning as they are not aware of used-up battery. Before operation, therefore, make certain that the battery voltage is higher than 4.5 V.

3.2 BATTERY POLARITY

In loading the battery, particular care should be taken in its polarity as wrong placing may damage transistors and motor.

3.3 CLEANING THE HEADS

The head slit contaminated with tape chips and powder, rubber, dust, or dirt leads to insufficient sound volume and tone deterioration. Wipe such contaminants off the slit using soft cloth moistened with alcohol or carbon tetrachloride.

3.4 CURRENT CONSUMPTION

	VOLUME	PLAY	REC
RADIO	Maximum	1200	1650
	Minimum	140	260
TAPE	Maximum	1200	–
	Minimum	230	260
F.F.	–	290	–
REW.	–	290	–

*Units in mA.

The above values may differ slightly depending on individual sets.

Measuring conditions (standard inputs)

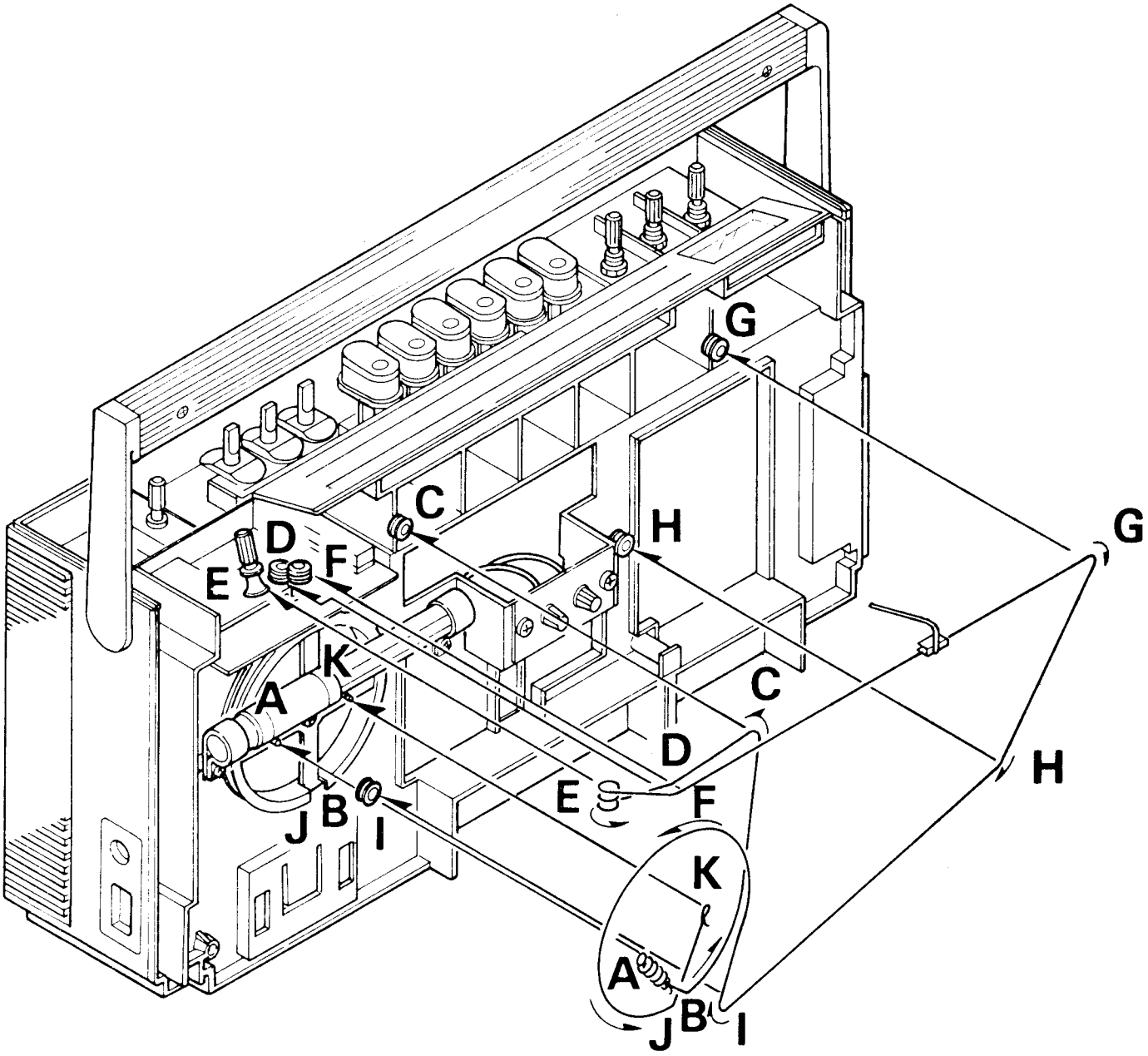
Radio
- AM: 5 mV, 400 Hz, 30% mod.
- FM: 1 mV, 400 Hz, 30% mod.

Tape Recorder
- Recording: 1 mV, 1 kHz at mic input
- Playback: Test tape MTT 112 (333 Hz, 250 nwb/m)

3.5 VOLTAGE CONVERSION

This unit may be converted to 110 V operation by the Voltage Selector Switch (S002) Located within the Battery Compartment.

4. DIAL STRINGING



5. MECHANICAL ADJUSTMENTS

PRECAUTIONS: Prior to any adjustments, clean the head slits with soft cloth or cotton swab moistened with denatured alcohol or carbon tetrachloride, and fully demagnetize the head, capstan and similar parts.

5.1 CHECKING THE PLAY OPERATION

5.1.1 CHECKING THE PLAY TIMING

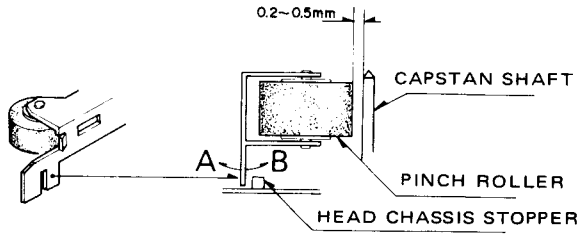
It is normal that when the PLAY pushbutton is depressed, the take-up reel table turns first, then the pinch roller is rotated. The reel table and pinch roller must not start turning at the same time.

NOTE:
Make certain that such a subsequent operation is mode irrespective of locking state is depressed slowly without loading the tape.

Slowly depress the PLAY pushbutton, and the take-up reel table will start turning. At that time, check to make certain that a clearance between the pinch roller and capstan is less than 0.5 mm.

5.1.2 ADJUSTING THE PLAY TIMING

If out of specification, bend the part of the pinch roller bracket which faces the head chassis stopper. In the figure shown, bend the part in the direction of A to decrease the clearance. To increase the clearance, bend the part in the direction of B.

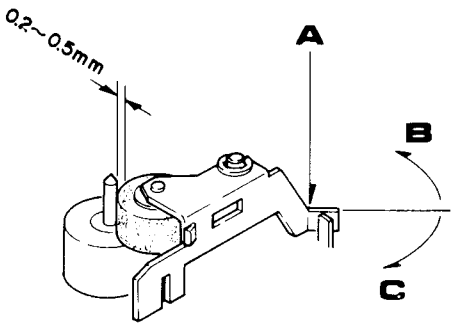


NOTE:
After adjustment, check to be sure that the pinch roller bracket does not contact the head chassis stopper in PLAY mode.

5.2 ADJUSTING THE PAUSE TIMING

Set the recorder in the playback mode. Depress the PAUSE pushbutton slowly, and the take-up reel will pause. As that time, check to ensure that a clearance between the pinch roller and ranges from 0.2 to 0.5 mm. If out of the range, adjust a bending angle of the pinch roller bracket arm (part A).

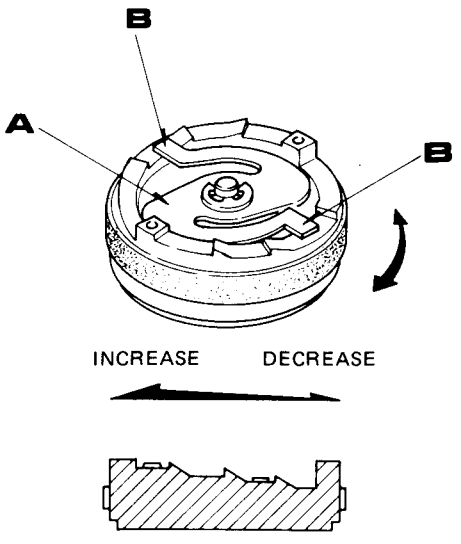
NOTE:
To increase a clearance between the pinch roller and capstan, decrease the angle (in the direction C). To decrease the clearance, increase the angle (in the direction B).



5.3 ADJUSTING THE FAST FORWARD AND REWIND TORQUE

Set the extended parts (B in the figure) of the torque adjustment leaf spring (A in the figure) of the FF/REW idler on any one of three stepping parts of the idler.

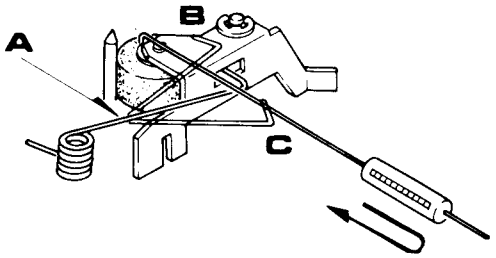
NOTE:
To increase torque, set the extended parts to the stepping part of "INCREASE" and to decrease it, set those to the stepping part of "DECREASE".
Adjusting range: 70 to 110 g·cm



5.4 ADJUSTING THE PINCH ROLLER PRESSURE

Measure the pressure of the pinch roller using a gauge as shown. For measurement, draw the pinch roller in the arrow direction in which it is detached from the capstan shaft and gradually return it toward the capstan. Read the gauge at the time when the pinch roller starts turning. The standard pressure is 300±50 g. If the pressure is out of the range, bend the pinch roller spring aroung the point A in the direction B or C.

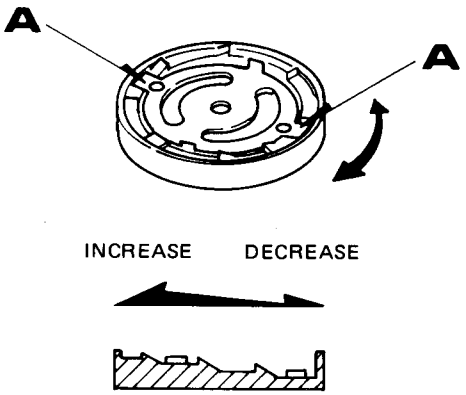
NOTE:
To make the pressure strong, bend in the direction B. To make the pressure weak, bend in the direction C.



5.5 ADJUSTING THE PLAY TORQUE

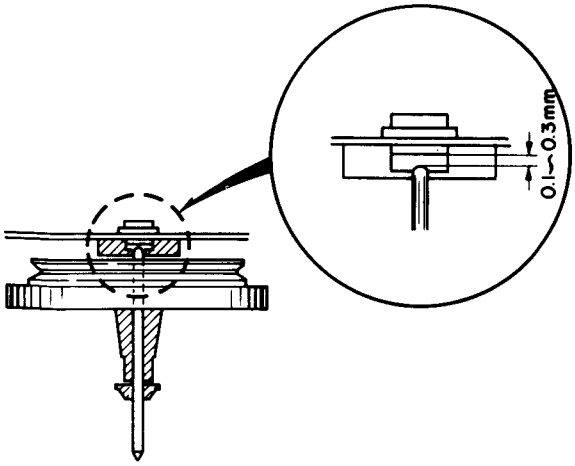
Mount the extended parts A (two) of the disc leaf spring on any one of the stepping parts of the idler.
Adjusting range: 40 to 70 g.cm

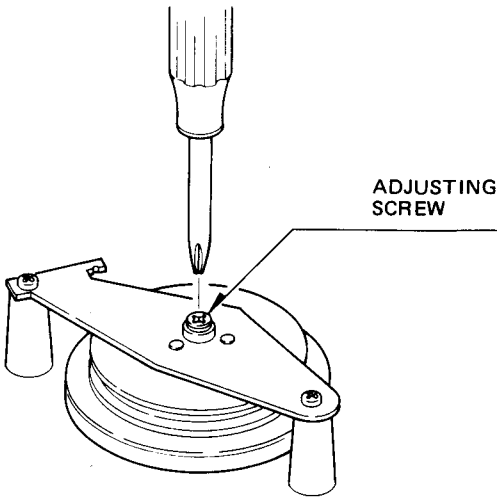
NOTES:
(1) To increase torque, mount the extended parts on "INCREASE" and to decrease torque, mount them on "DECREASE".
(2) Check the take-up clutch for slipping. When the reel base is paused, the wheel must smoothly rotate. The wheel, when irregularly rotating or stopping, is not acceptable.



5.6 ADJUSTING THE FLYWHEEL THRUST

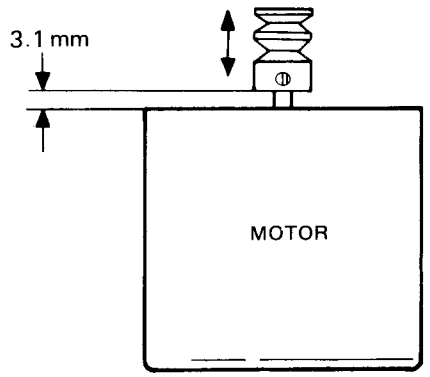
Adjust the thrust screw at the flywheel bracket until the clearance between the capstan tail end and thrust bearing is 0.1 to 0.3 mm as shown, using a phillips screw driver. For adjusting, feel of axial dropping of the flywheel for proper clearance as this cannot been seen through. Then paint the screw to lock.





5.7 POSITIONING THE MOTOR PULLEY

Check to ensure that a clearance between the DC motor and pulley is 3.1 mm. If out of specification, reposition the pulley as shown.



5.8 ADJUSTING THE TAPE SPEED

Play the 3 kHz test tape back, and check to make sure that the meter pointer of a measuring instrument (frequency counter) indicates 3000 Hz ±2.5% or less as specified. If it is out of the range, adjust the semifixed resistor inside the motor. After adjustment, be sure to stick seal on the hole for the resistor.

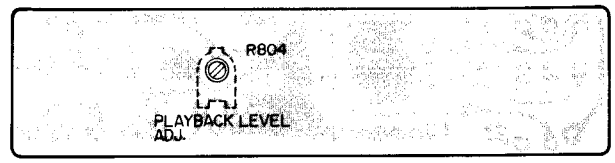
6. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

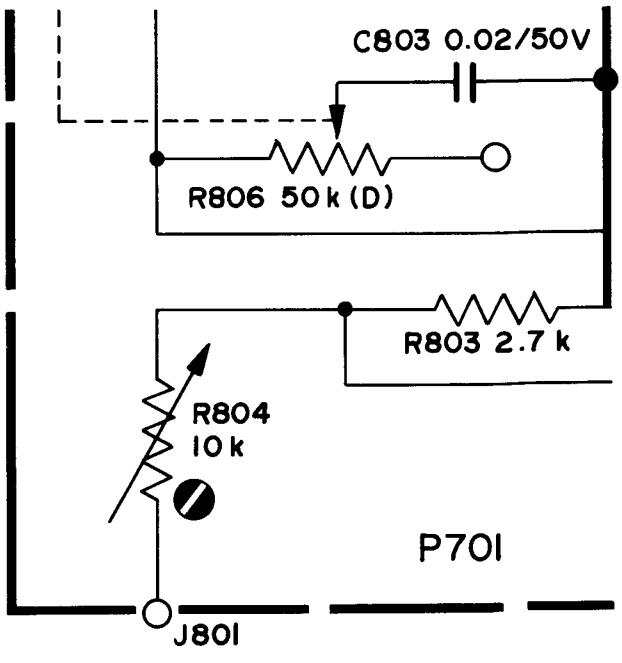
Precaution for Adjustment and Measurement

1. Whenever adjusting or measuring any circuit, wipe the heads clean with a soft cloth moistened with alcohol or carbon tetrachloride. Also be sure to demagnetize the heads, capstan, and similar parts.
2. The voltage at any electrical point may vary with the input signal, so make measurements of voltage under no signal condition.
3. Transistors are affected by microvoltage. Whenever measuring on them, use a VTVM having a high internal resistance and high input sensitivity enough to eliminate errors in measurement.
4. In adjustment or measurement, set the TONE control to its mechanical center ("0") unless otherwise specified.
5. For measurements of outputs, connect a pure 4 Ω resistor across the external speaker terminal and use a VTVM. Unless otherwise specified, adjust the VOLUME control for the standard output level, 50 mW (0.45 V/4 Ω).

6.1 ADJUSTING THE PLAYBACK LEVEL

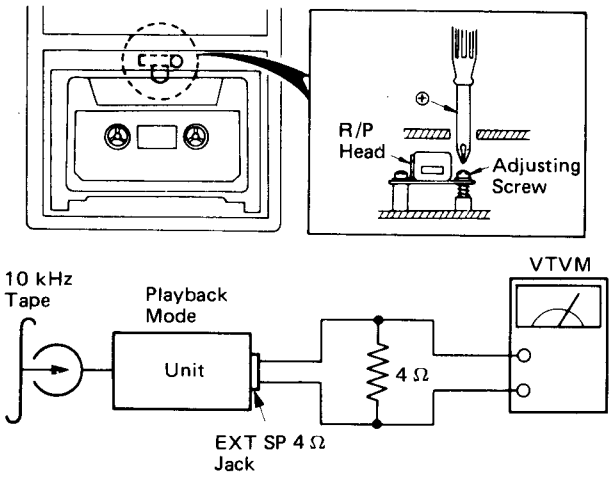
Play the 333 Hz level adjusting tape MTT 112 back and inspect the R and L channel output voltages at the EXT SP 4 Ω jack. Adjust R804 until the output voltage of the R channel coincides with that of the L channel. The output voltage at EXT SP 4 Ω jack will be around 0.45 V.





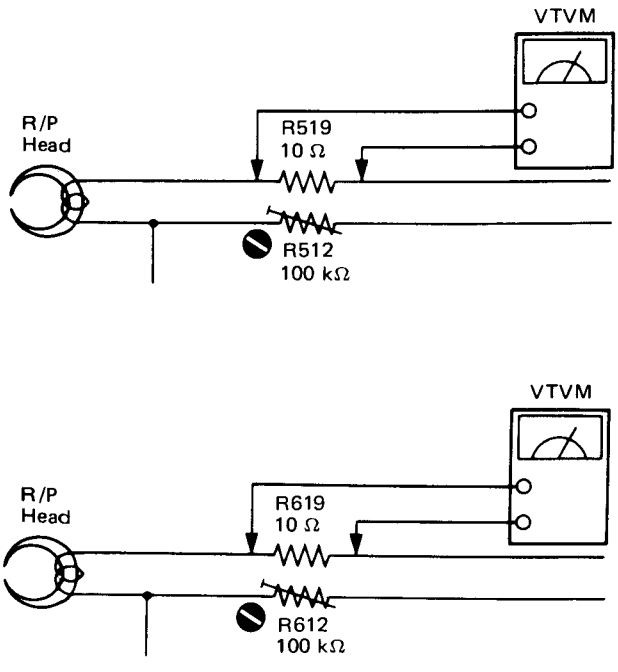
6.2 ADJUSTING THE HEAD AZIMUTH

Connect a VTVM across the EXT SP 4 Ω jack. Play the 10 kHz signal of the test tape MTT 216 back. Turn the adjusting screw until the output voltage is maximum. If the maximum voltages of the both channels are different, adjust the across to a point at which the output levels of both channels are identical. After adjustment, be sure to point the adjusting screws to lock.



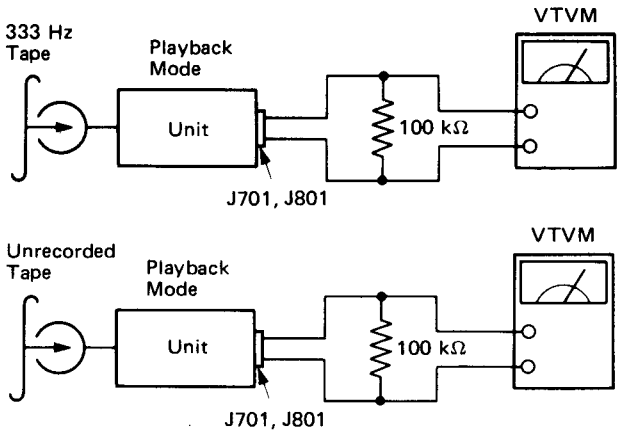
6.3 ADJUSTING THE BIAS CURRENT

Set the power voltage to 9 V and set the TAPE SELECTOR switch to NORMAL. Set the recorder in the recording mode. Adjust the semifixed resistors R512 and R612 until the voltages across R519 and R619 are 5.3 mV. The bias current will increase by turning the semifixed resistors R512 and R612 counter-clockwise as locking toward part arrangement.



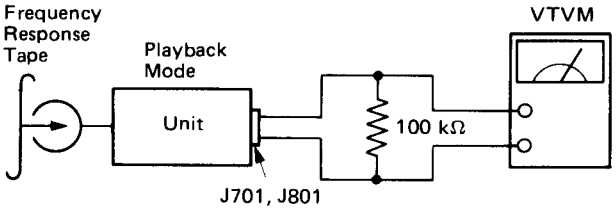
6.4 MEASURING THE SIGNAL-TO-NOISE RATIO (IN PLAYBACK MODE)

Play the 333 Hz level adjusting tape MTT 112 back. Let this signal level at the terminal J701 or J801 be a standard. In turn, play a unrecorded tape back and read the noise output level.



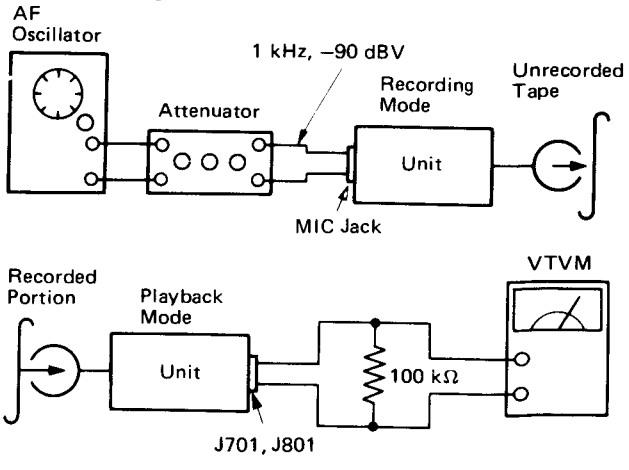
6.5 MEASURING THE PLAYBACK FREQUENCY RESPONSE

Play the frequency response test tape MTT 216 back. Read the signal levels at the terminal J701 or J801 at various frequencies in reference to the 315 Hz level.



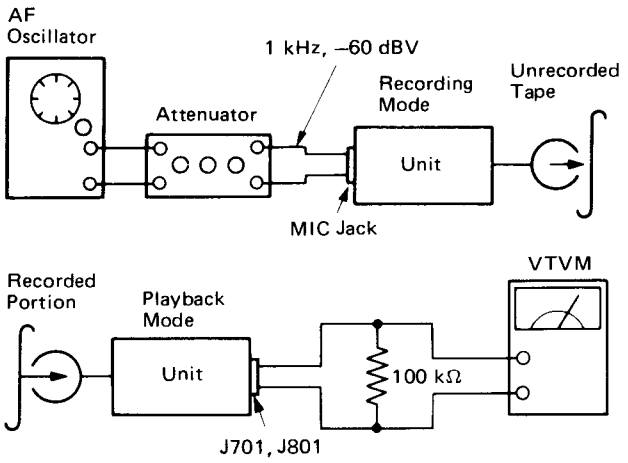
6.6 MEASURING THE COMBINED RECORDING AND PLAYBACK FREQUENCY RESPONSE

Connect a 1 kHz, −90 dBV signal from an audio-frequency oscillator to the external mic jack and record it. Similarly, record a 80 Hz, 125 Hz, 6 kHz, and 8 kHz signals. In turn, play the recorded signals back. Read the signal levels at the terminal J701 or J801 in reference to 1 kHz, 0 dB signal.



6.7 MEASURING THE COMBINED RECORDING AND PLAYBACK LEVEL

Connect a 1 kHz, –60 dBV signal from an audio-frequency oscillator to the external mic jack and record it. In turn, play the recorded signal back. Read the signal level at the terminal J701 or J801. The normal signal level will be 0.775 V rms.

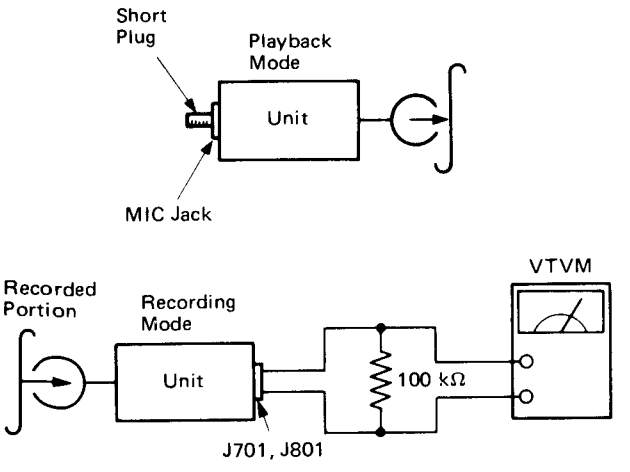


6.8 MEASURING THE COMBINED RECORDING AND PLAYBACK DISTORTION

Record and playback a signal in a manner similar to that for Item 6.7 above. Measure the distortion.

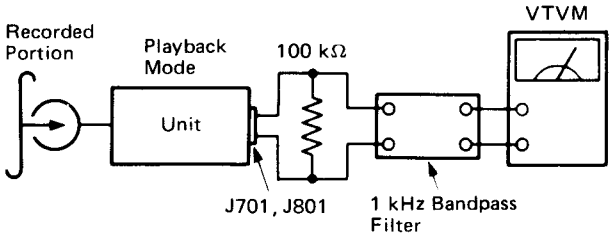
6.9 MEASURING THE COMBINED RECORDING AND PLAYBACK SIGNAL-TO-NOISE RATIO

Record a signal in a manner similar to that for Item 6.7 above. Rewind the tape a little. Make the external mic jack short using a short plug and erase a part of the rewound tape. Read the signal level for the 1 kHz, –60 dBV input and the noise level for the erased part. Subtract the noise level from the signal level in dB.



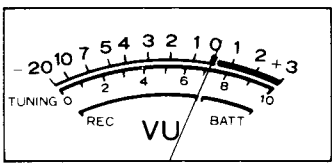
6.10 MEASURING THE ERASING LEVEL

Connect a 1 kHz bandpass filter to the terminal J701 or J801. Playback the tape used in Item 6.9 above. Connect a 1 kHz, –60 dBV signal from an audio-frequency oscillator to the external mic jack and record it. In turn, play the recorded signal back. Read the signal level in reference to 0 dB. Record a 1 kHz, –50 dBV signal in a manner similar above and rewind it. Make the external mic jack short using a short plug and erase the rewound tape. Play the erased portion back and read the signal level for the 1 kHz, –60 dBV signal.



6.11 CALIBRATING THE VU METER

Connect a precisely-adjusted 6.75 V DC power source to the DC 9 V Jack. Set the recorder in the playback mode. Adjust R356 so that the meter reading is between the black and green areas of the scale.



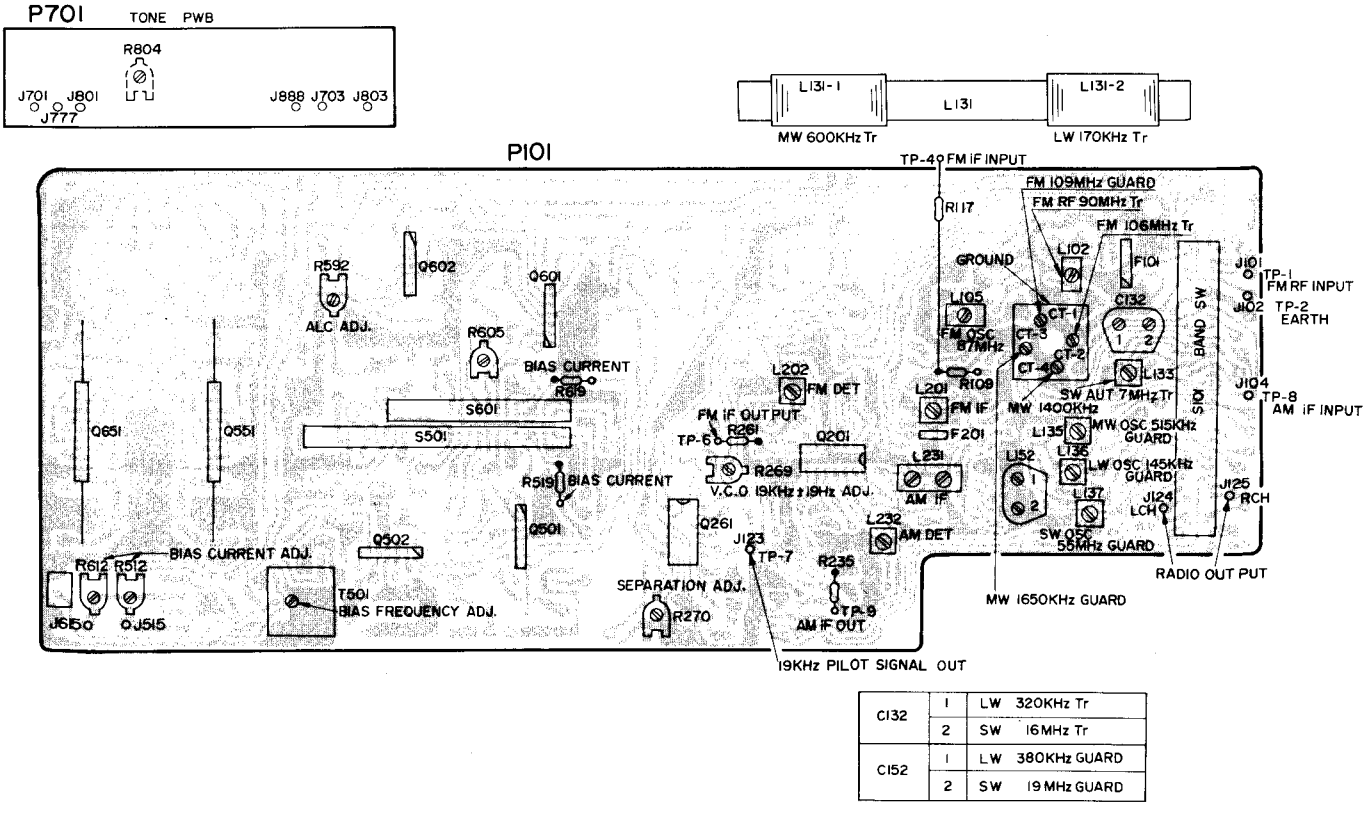
7. ALIGNMENT PROCEDURES

7.1 FM ALIGNMENT PROCEDURE

(BAND switch in "FM", MODE switch in "MONO" and FUNCTION switch in "RADIO/AUX".)

Step	Connect Signal Generator to:	Set Signal Frequency to:	Set Tuning Dial to:	Indicator Connection	Adjust:	Procedure
1	TP-4 (J104).	10.7 MHz sweep.	—	Oscilloscope vertical connector to TP-6 thru diode.	L201 and L202.	Adjust inductors for highest and symmetric curve.
2	TP-1 (J101).	87 MHz with modulation.	87 MHz (max. capacitance).	VTVM across EXT SP 4 Ω Jack.	L105 (OSC coil).	Adjust for max. output.
3		109 MHz with modulation.	109 MHz (min. capacitance).		CT-1 (trimmer).	
4	Repeat Steps 2 and 3.					
5	TP-1 (J101).	90 MHz with modulation.	90 MHz.	VTVM across EXT SP 4 Ω Jack.	L102.	Adjust for max. output.
6		106 MHz with modulation.	106 MHz.		CT-2 (trimmer).	
7	Repeat Steps 5 and 6.					

NOTE:
1. In adjustment, connect the signal generator grounding terminal (—) to that of the set.
2. Modulate the signal generator to 30% with a 400 Hz signal.
3. Reduce the signal generator as low as possible.
4. Set the VOLUME control for the maximum level.



C132	1	LW 320KHz Tr
	2	SW 16MHz Tr
C152	1	LW 380KHz GUARD
	2	SW 19MHz GUARD

7.2 FM STEREO SEPARATION ALIGNMENT PROCEDURE

(BAND switch in "FM" and MODE switch in "STEREO".)

Step	Connect Signal Generator to:	Set Signal Frequency to:	Set Tuning Dial to:	Indicator Connection	Adjust:	Procedure
1	TP-1 (J101).	–	98 MHz.	Frequency counter to TP-7 (J123).	R269.	Adjust semifixed resistor so that frequency counter reading in 19 kHz is mechanical center.
2		L channel		VTVM to EXT SP 4 Ω Jack.	R270.	Adjust semifixed resistor for min. output in R channel.
3		R channel				Adjust semifixed resistor for min. output in L channel.
4	Repeat Steps 2 and 3.					

7.3 MW ALIGNMENT PROCEDURE

(BAND switch in "MW" and FUNCTION switch in "RADIO/AUX".)

Step	Connect Signal Generator to:	Set Signal Frequency to:	Set Tuning Dial to:	Indicator Connection	Adjust:	Procedure
1	TP-8 (J104).	455 kHz with ±35 kHz sweep.	–	Oscilloscope vertical connector to TP-9 thru diode.	L231 and L232.	Adjust inductors for highest and symmetric curve.
2	Indirect coupling near set antenna coil.	515 kHz with modulation.	515 kHz (max. capacitance).	VTVM across EXT SP 4 Ω.	L135 (OSC coil).	Adjust for max. output.
3		1650 kHz with modulation.	1650 kHz (min. capacitance).		CT-3 (trimmer).	
4	Repeat Steps 2 and 3.					
5	Indirect coupling near set antenna coil.	600 kHz with modulation.	600 kHz.	VTVM across EXT SP 4 Ω.	L131-1 (antenna coil).	Adjust for max. output.
6		1400 kHz with modulation.	1400 kHz.		CT-4 (trimmer).	
7	Repeat Steps 5 and 6.					

NOTE:

1. In adjustment, connect the signal generator grounding terminal (–) to that of the set.
2. Modulate the signal generator to 30% with a 400 Hz signal.
3. Reduce the signal generator as low as possible.
4. Set the VOLUME control for the maximum level.

7.4 LW ALIGNMENT PROCEDURE

(BAND switch in "LW" and FUNCTION switch in "RADIO/AUX".)

Step	Connect Signal Generator to:	Set Signal Frequency to:	Set Tuning Dial to:	Indicator Connection	Adjust:	Procedure
1	Indirect coupling near set antenna coil	145 kHz with modulation.	145 kHz (max. capacitance).	VTVM across EXT SP 4 Ω.	L136.	Adjust for max. output.
2		380 kHz with modulation.	380 kHz (min. capacitance).		C152-1.	
3	Repeat Steps 1 and 2.					
4	Indirect coupling near set antenna coil	170 kHz with modulation.	170 kHz.	VTVM across EXT SP 4 Ω.	L131-2.	Adjust for max. output.
5		320 kHz with modulation.	320 kHz.		C132-1.	
6	Repeat Steps 4 and 5.					

7.5 SW ALIGNMENT PROCEDURE

(BAND switch in "SW" and FUNCTION switch in "RADIO/AUX".)

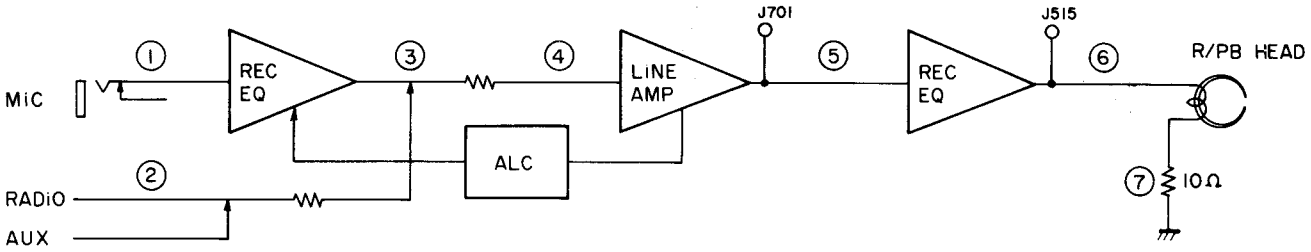
Step	Connect Signal Generator to:	Set Signal Frequency to:	Set Tuning Dial to:	Indicator Connection	Adjust:	Procedure
1	Indirect coupling near set antenna coil.	5.5 MHz with modulation.	5.5 MHz (max. capacitance).	VTVM across EXT SP 4 Ω.	L137.	Adjust for max. output.
2		19 MHz with modulation.	19 MHz (min. capacitance).		C152-2.	
3	Repeat Steps 1 and 2.					
4	Indirect coupling near set antenna coil.	7 MHz with modulation.	7 MHz.	VTVM across EXT SP 4 Ω.	L133	Adjust for max. output.
5		16 MHz with modulation.	16 MHz.		C132-2	
6	Repeat Steps 4 and 5.					

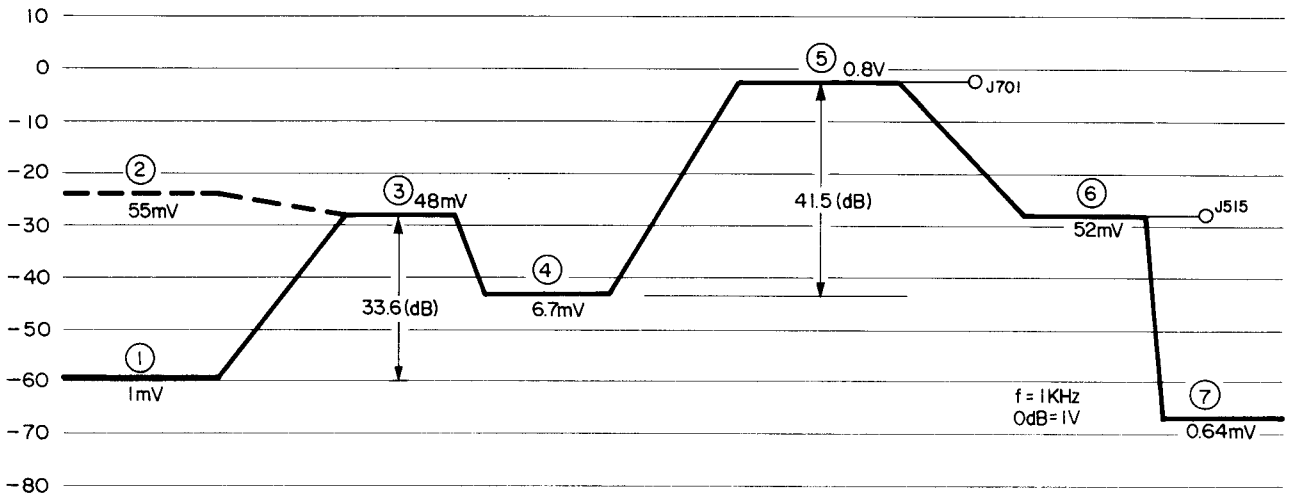
NOTE:
1. In adjustment, connect the signal generator grounding terminal (–) to that of the set.
2. Modulate the signal generator to 30% with a 400 Hz signal.
3. Reduce the signal generator as low as possible.
4. Set the VOLUME control for the maximum level.

8. DIAGRAMS

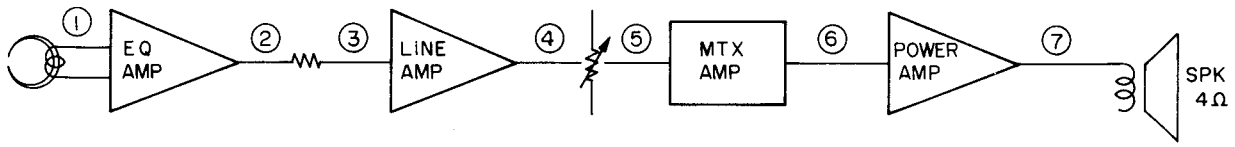
8.1 LEVEL DIAGRAMS

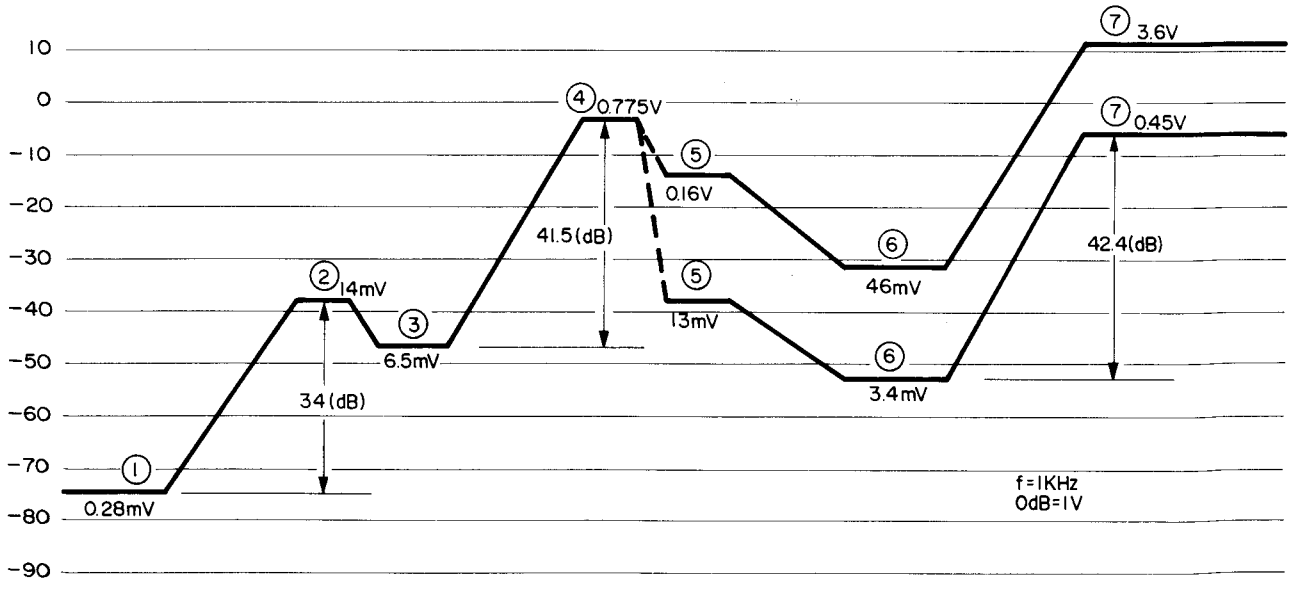
–RECORDING MODE (1 V = 0 dB)–



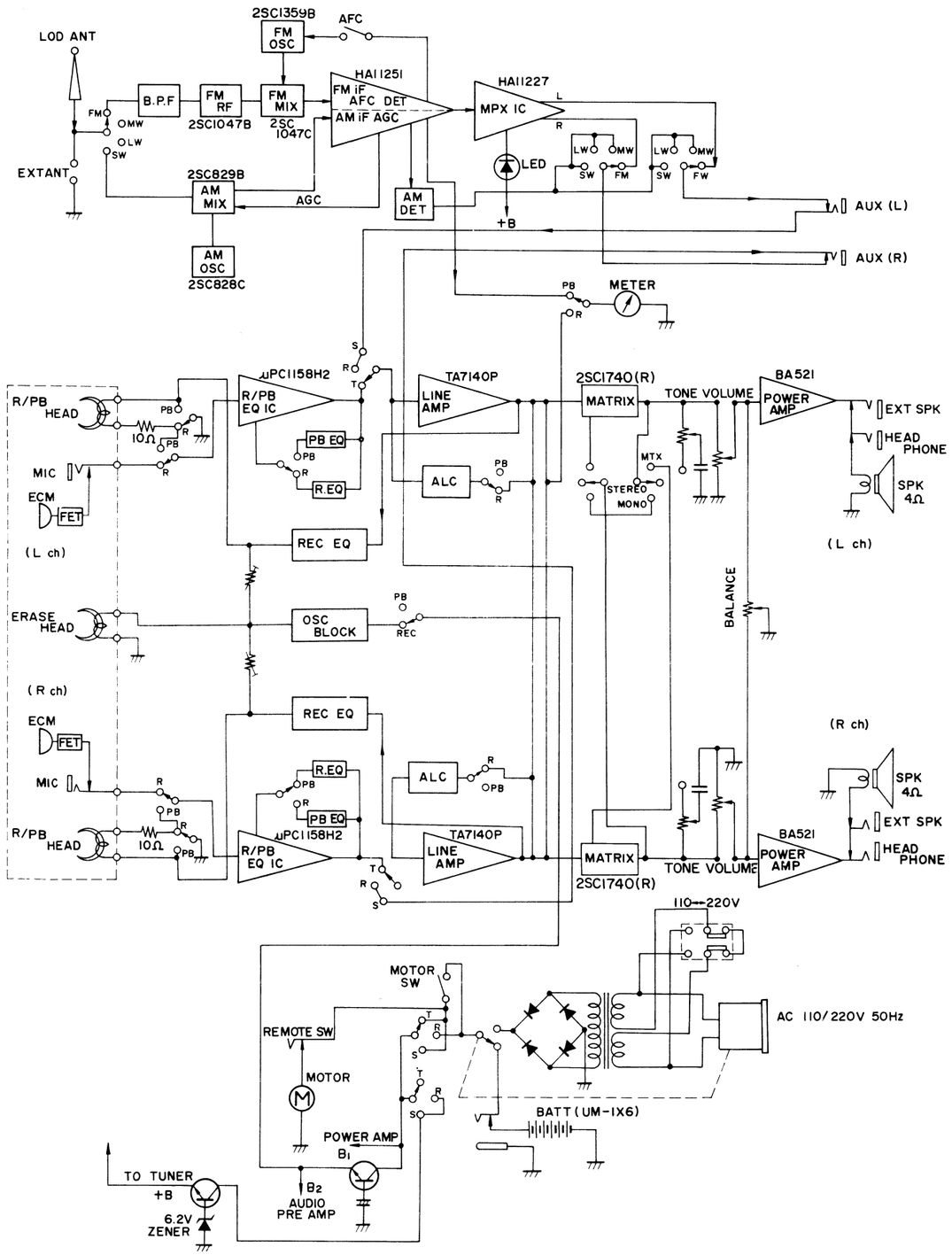


–PLAYBACK MODE (1 V = 0 dB)–





8.2 BLOCK DIAGRAM



CRS-2104

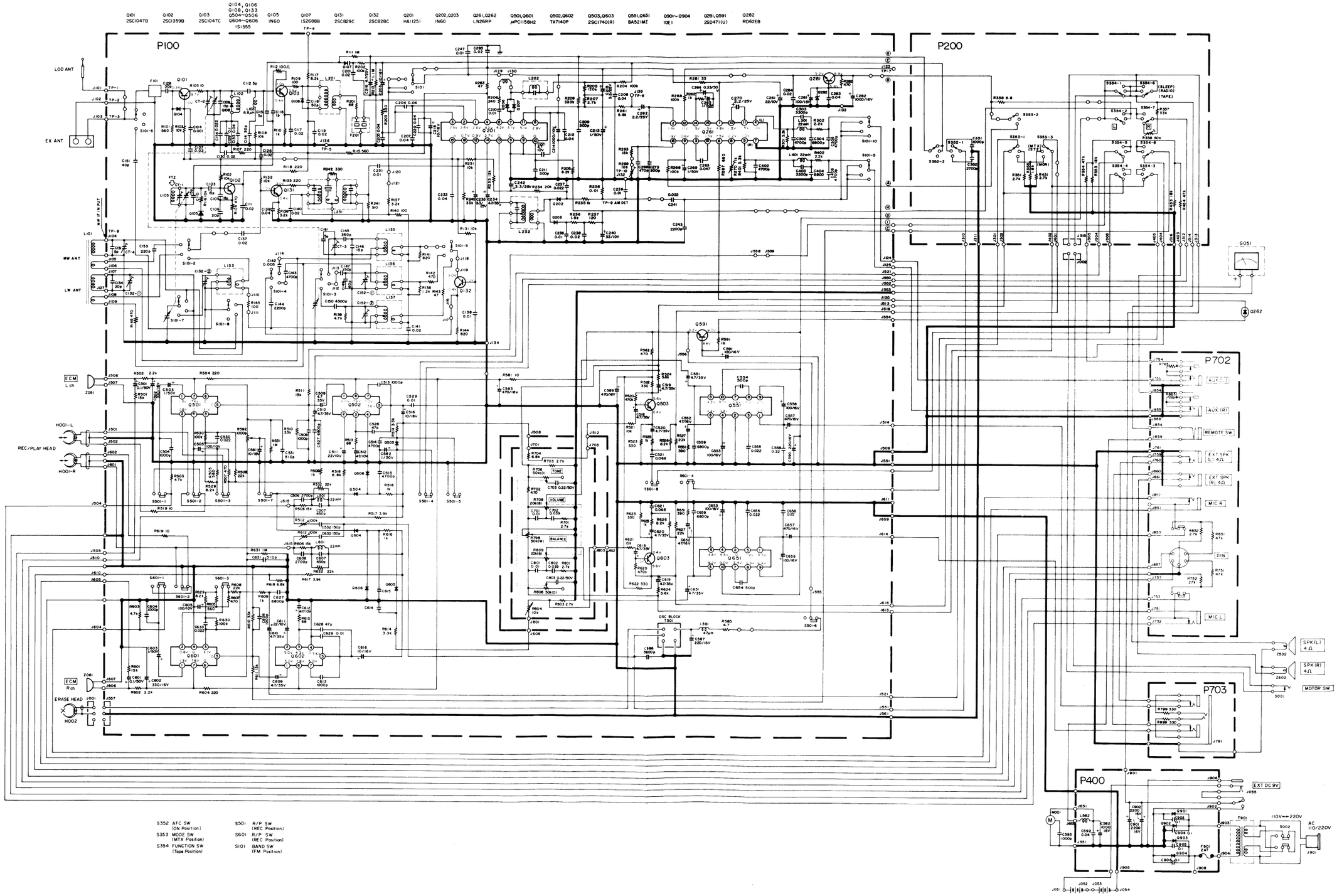
FTZ REGULATION

Instructions for the use in the range other than specified in FTZ codes.

Achtung für die Leute, die in dem Gebiet wohnen, wo die FTZ-Bestimmungen vorherrschend sind.

Sollte das Gerät auch für Frequenzen auszerhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatorspule (in der Abbildung mit „FTZ" gekennzeichnet) so zu korrigieren, daß er den Bestimmungen entspricht.

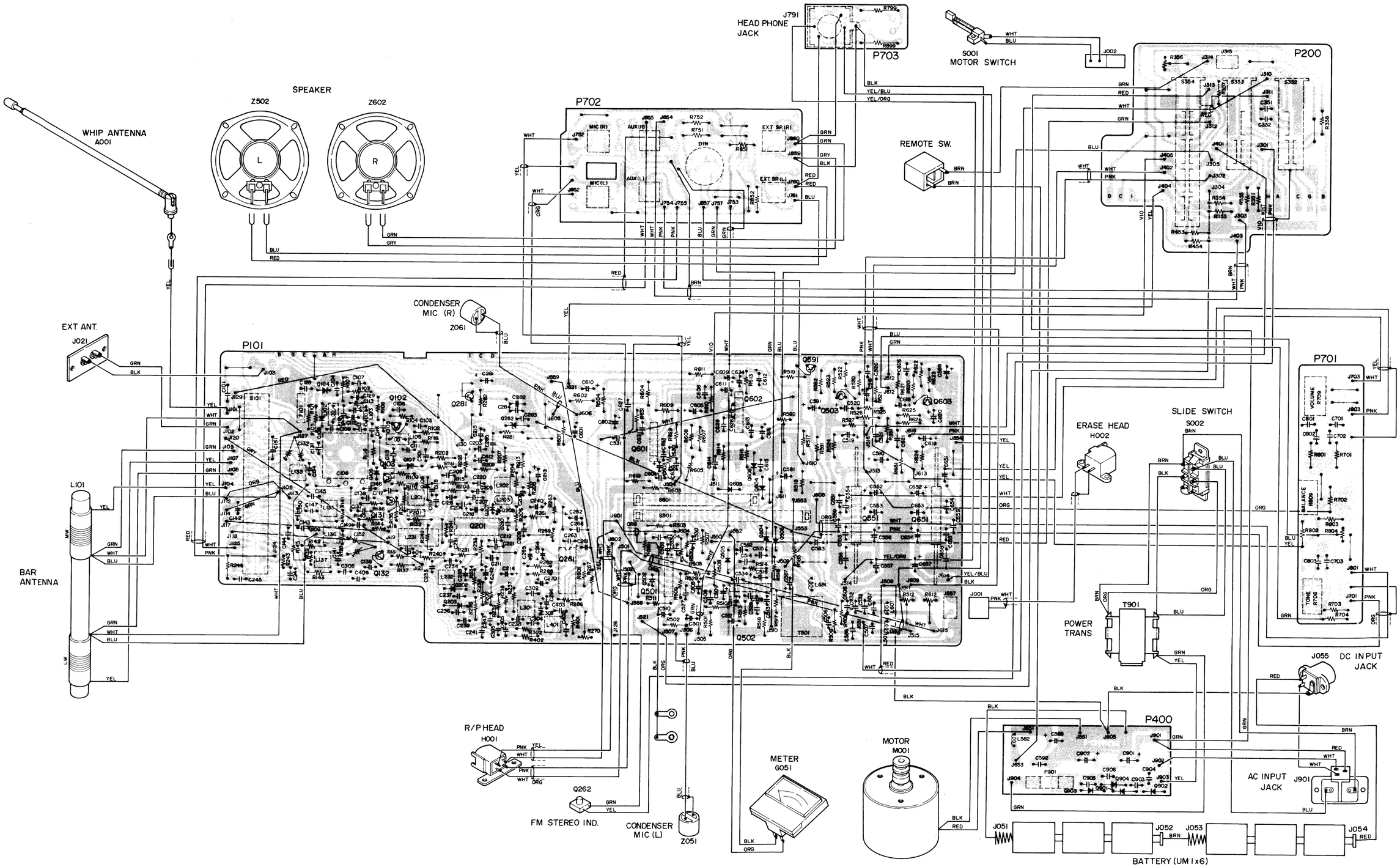
8.3 SCHEMATIC DIAGRAM



S352 AFC SW (ON Position)
S353 MODE SW (MTX Position)
S354 FUNCTION SW (Tape Position)

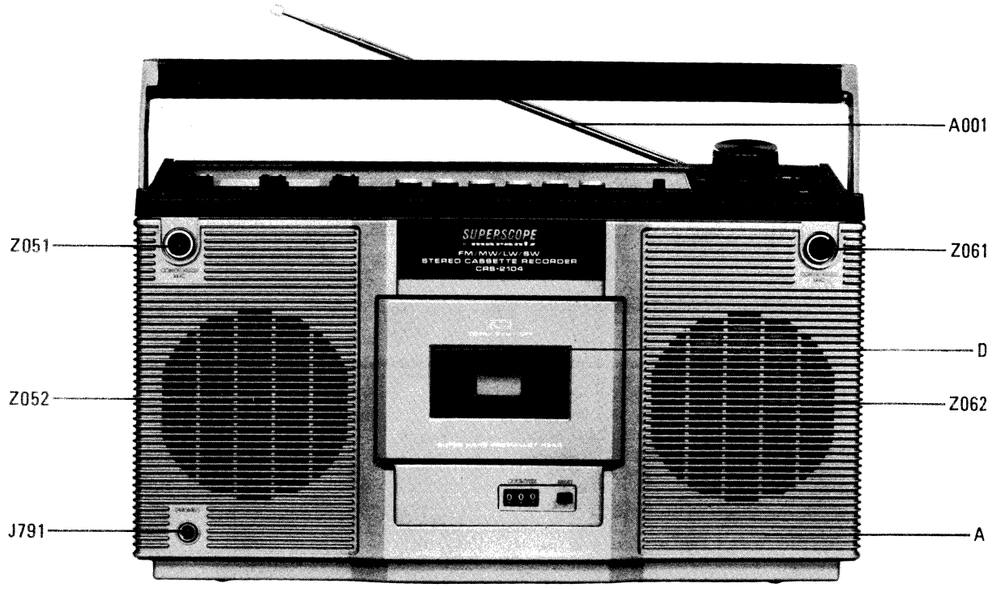
S501 R/P SW (REC Position)
S601 R/P SW (REC Position)
S101 BAND SW (FM Position)

8.4 CIRCUIT BOARD DIAGRAM

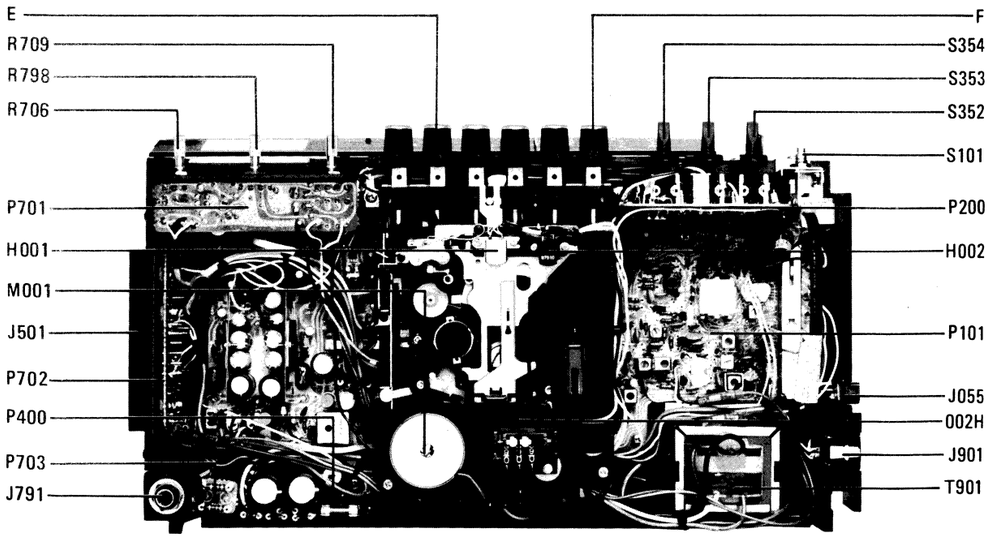


9. MAJOR COMPONENT LOCATIONS

9.1 CABINET - FRONT VIEW

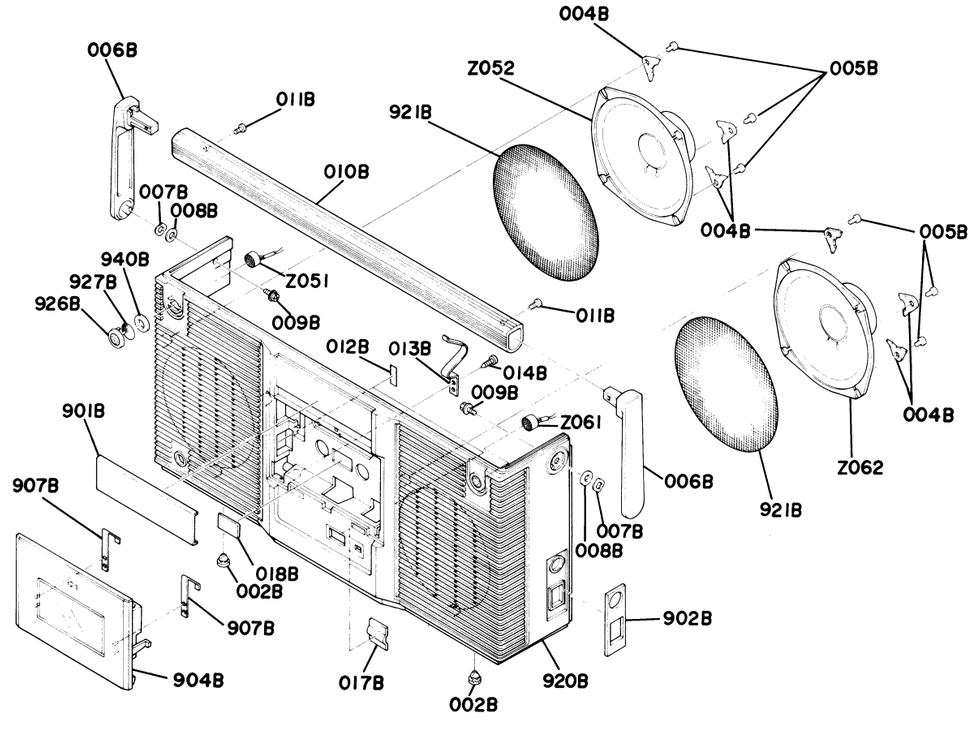


9.2 CHASSIS - TOP VIEW



10. EXPLODED VIEWS AND PARTS LIST

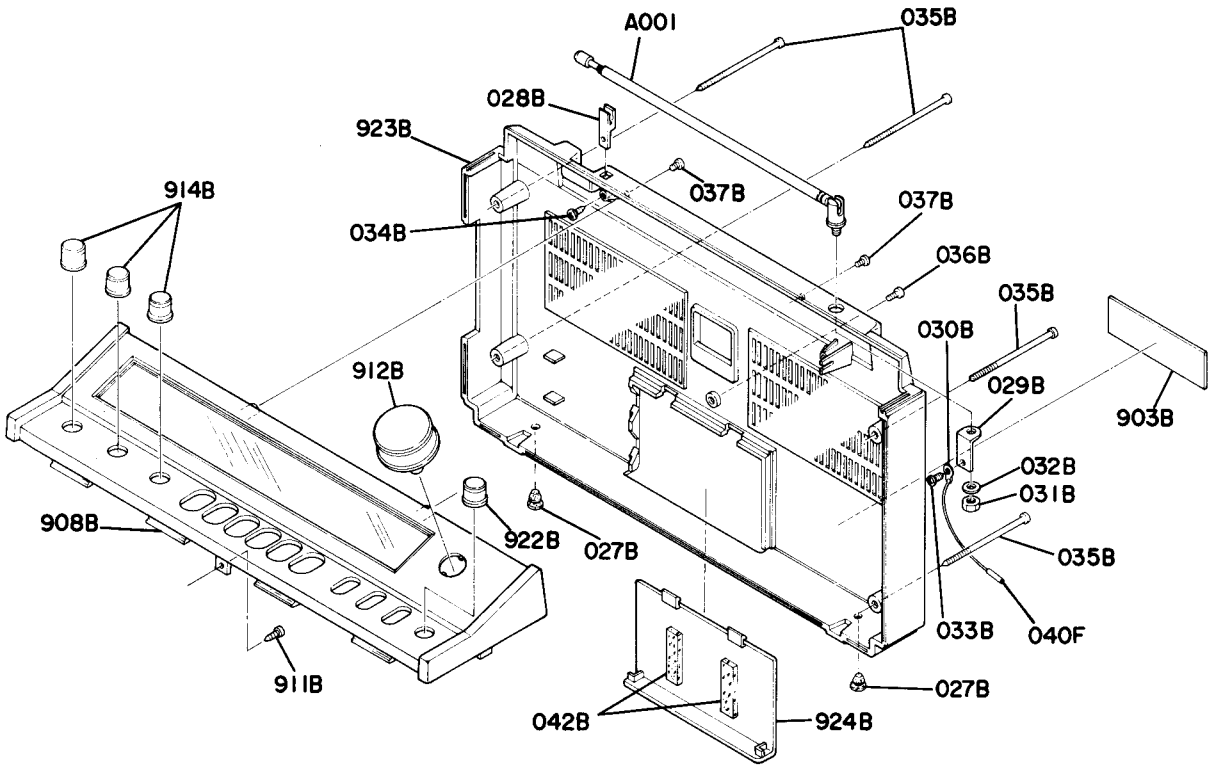
10.1 [C01-99] FRONT CASE



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
*	1	4240064400	Case Assembly (A.B.C.)	
A	1	4240064410	Case Assembly (Front)	
002B	2	4210057012	Leg	
006B	2	4210104020	Retainer	
007B	2	5413060000	Wave Washer	
008B	2	54020601A0	Flat Washer	
009B	2	52040306A9	H. Head Bolt	H3 x 6
010B	1	4210253010	Handle	
011B	2	5110030859	B.H.M. Screw	B3 x 8
012B	2	3426056020	Buffer	
017B	1	4123158032	Window	
018B	1	3347274010	Reflector	
901B	1	4240063010	Escutcheon	
902B	1	4240265010	Indicator	
920B	1	4210064015	Case	
921B	2	4210202012	Net	
926B	2	4210063012	Escutcheon	
927B	2	4210107010	Sheet	
940B	2	4210107020	Sheet	

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
D	1	4210064470	Case Assembly (Cassette)	
904B	1	4210064550	Case	
907B	1	3320115043	Spring	
004B	6	1114005010	Clamper	
005B	6	51100305A9	B.H.M.Screw	B3 x 5
013B	1	4210115010	Spring	
014B	1	51280308B0	B.H.TAP. Screw	B3 x 8
Z051	1	MS50090040	MIC. Unit	
Z052	1	QK01203050	Speaker	
Z061	1	MS50090040	MIC. Unit	
Z062	1	QK01203050	Speaker	

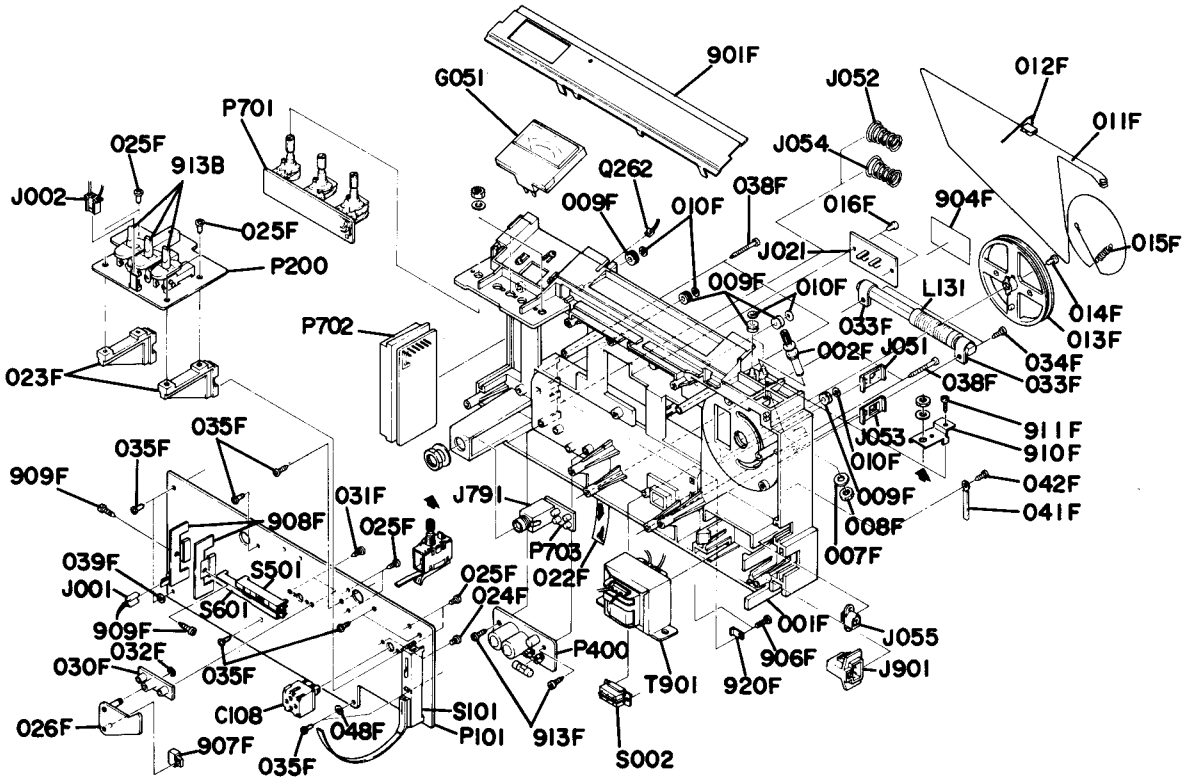
10.2 [C02-99] REAR LID AND UPPER CASE



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
B	1	4240257400	Lid Assembly (Rear)	
027B	2	4210057012	Leg	
903B	1	4240265020	Indicator	
923B	1	4210257012	Lid	
C	1	4210257440	Lid Assembly (Battery)	
042B	2	3411056050	Buffer	
924B	1	4210257020	Lid	
028B	1	4210271010	Holder	
029B	1	3358104020	Retainer	
030B	1	62031340W0	Lug	
031B	1	53110503A9	Hexagon Nut	
032B	1	54040502A0	Spring Washer	
033B	1	51280308B0	B.H.TAP. Screw	B3 x 8
034B	1	51280308B0	B.H.TAP. Screw	B3 x 8
035B	4	51284019S0	B.H.TAP. Screw	
036B	1	51280308U0	B.H.TAP. Screw	B3 x 8
037B	2	51280308U0	B.H.TAP. Screw	B3 x 8

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
A001	1	YR06080030	Whip Antenna	
908B	1	4210064542	Case	
911B	1	51280308B0	B.H.TAP. Screw	B3 x 8
912B	1	4210154012	Knob	
914B	3	4123154030	Knob	
922B	1	4210154060	Knob	
040F	1	62030039W0	Plug	

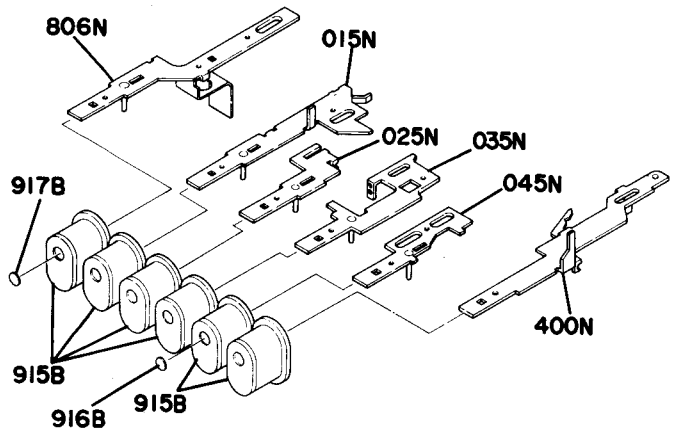
10.3 [M01-99] P.W. BOARDS AND GENERAL PARTS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
001F	1	4210105015	Chassis	
002F	1	4210112500	Shaft	
007F	1	5401070010	Flat Washer, S Type	
008F	1	53110713A0	Hexagon Nut	
009F	6	1271262010	Pulley	
010F	6	54020301A0	Flat Washer, P Type	
011F	1	72060802A0	String (120)	
012F	1	4210103010	Pointer	
013F	1	4210159010	Drum	
014F	1	51062606A0	P.H.M. Screw	P2.6 x 6
015F	1	71101689L0	Spring	
016F	2	51280308B0	B.H. TAP. Screw	B3 x 8
022F	1	3397007010	Strip	
023F	2	4210104010	Retainer	
024F	2	51062605A0	P.H.M. Screw	P2.6 x 5
025F	8	51280308B0	B.H. TAP. Screw	B3 x 8
026F	1	4210127500	Control Board	
030F	1	4210004010	Table	
031F	2	51280308B0	B.H. TAP. Screw	B3 x 8
032F	1	64000300R0	RG Ring, E Type	
033F	2	1502271010	Holder	
034F	2	51280312B0	B.H. TAP. Screw	B3 x 12
035F	9	51280308B0	B.H. TAP. Screw	B3 x 8
038F	4	51284019S0	B.H. TAP. Screw	
039F	1	59030810P0	Washer	
041F	1	2871005010	Clamper	
042F	1	51280308B0	B.H. TAP. Screw	B3 x 8
048F	1	59030810P0	Washer	
913F	2	51280308P0	P.H.TAP. Screw	P3 x 8

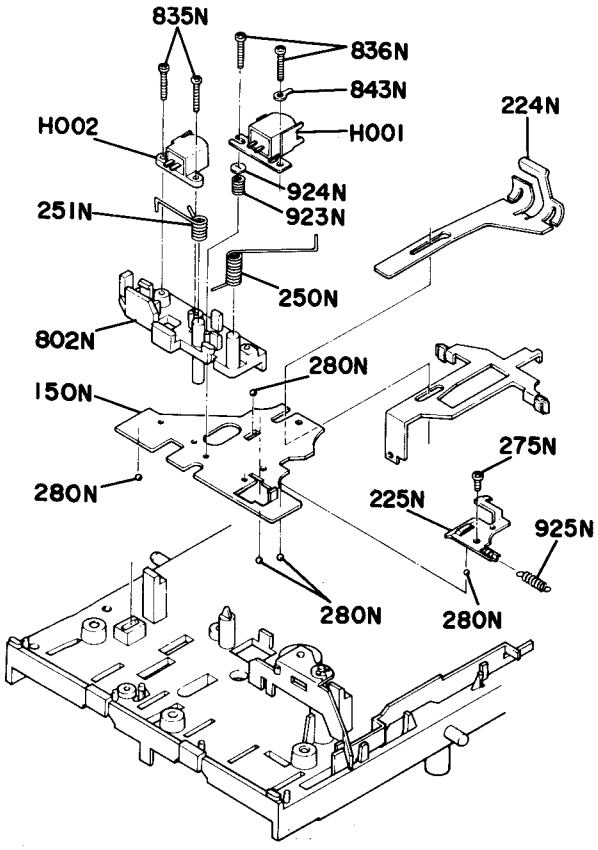
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
901F	1	4240302012	Dial	
904F	1	4210861020	Label	
906F	2	5110031289	B.H.M. Screw	B3 x 12
907F	1	4240125010	Joint	
908F	2	4136267010	Heatsink	
909F	2	51300306B0	P.H.TAP. Screw	P3 x 6
910F	1	4240160012	Bracket	
911F	1	51280308B0	B.H.TAP. Screw	B3 x 8
920F	1	4240114010	Stopper	
C108	1	CP22400210	Variable Cap	
G051	1	IM11055100	D.C. Meter	
J001	1	YJ10001242	Jack (3P)	
J002	1	YB00200530	Connective Cord	
J012	1	YL03020020	Terminal	
J051	1	YL12010710	Terminal	
J052	1	YL11010090	Terminal	
J053	1	YL12010710	Terminal	
J054	1	YL11010090	Terminal	
J055	1	YJ04000550	DC. Jack	
J791	1	YJ01001060	Jack, Headphone	
J901	1	YJ04000500	AC Jack	
Q262	1	HI10007020	L.E.D. LN26D FM. Stereo IND,	
T901	1	TS15405040	Power Transf. E154 220V-9V 1.2A	
L131	1	LF11200613	ANT Coil (MW. LW)	
S002	1	SS02020510	Slide Switch (110V~220V)	
S101	1	SC10040010	Switch (Band)	
S501	1	SS09020070	Slide Switch (Rec/Play)	
S601	1	SS06020360	Slide Switch (Rec/Play)	

10.4 [P01-99] OPERATION LEVERS AND BUTTONS



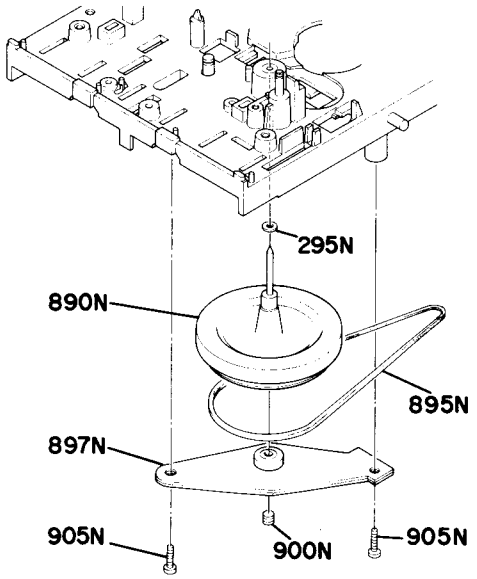
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
E	1	4210270460	Button Assembly (Stop/Eject)
915B	1	4210270010	Button
916B	1	3411108023	Seal
F	1	4210270470	Button Assembly (Rec)
915B	1	4210270010	Button
917B	1	3411108033	Seal
915B	4	4210270010	Button
015N	1	4367354704	Lever (REW)
025N	1	4367354720	Lever (Play)
035N	1	4367354730	Lever (FF)
045N	1	4367354740	Lever (Stop/Eject)
400N	1	4367354754	Lever (Pause)
806N	1	4367354783	Lever (REC)

10.5 [P02-99] HEAD CHASSIS



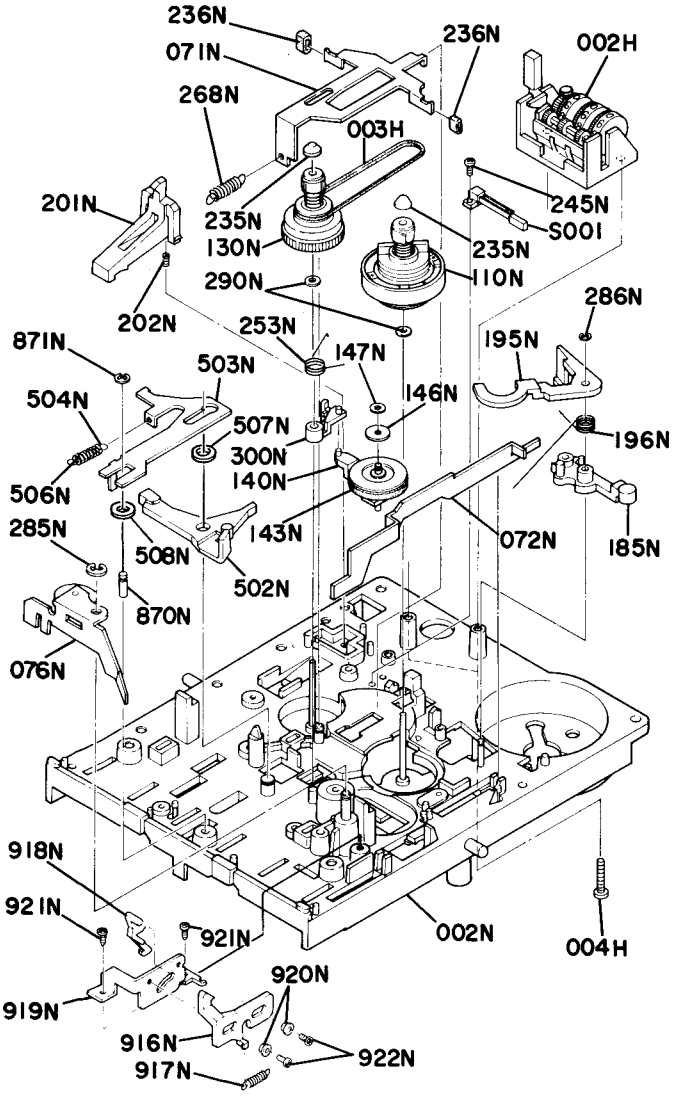
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
150N	1	4367105023	Chassis	
224N	1	4367115060	Spring	
225N	1	4367115170	Spring	
250N	1	4367115040	Spring	
251N	1	4367115050	Spring	
275N	1	51300308B0	P.H. TAP. Screw	P3 x 8
280N	5	61020010T0	Ball	
802N	1	4367160010	Bracket	
835N	2	51100210A0	B.H.M. Screw	B2 x 10
836N	2	51100210A0	B.H.M. Screw	B2 x 10
843N	1	62021030W0	Lug	
923N	1	4380115090	Spring	
924N	1	3444118070	Spacer	
926N	1	4367115150	Spring	
H001	1	LH42801090	Rec/Play Head	
H002	1	LH31000440	Erase Head	

10.6 [P03-99] FLYWHEEL



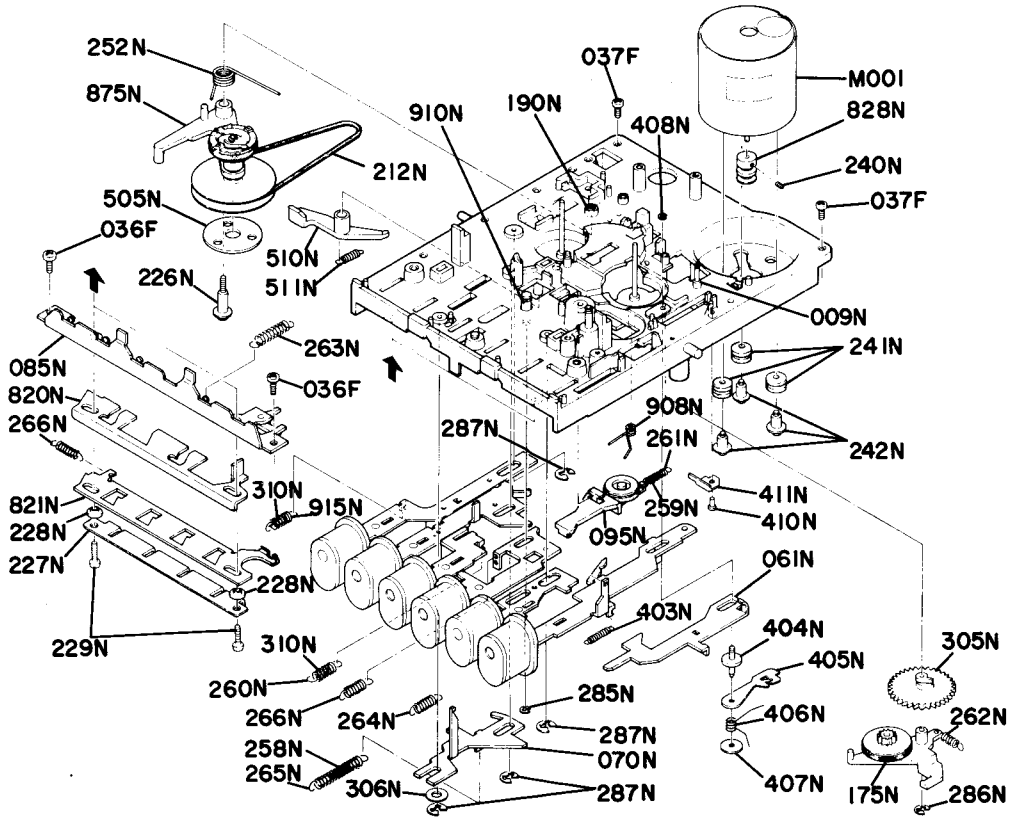
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
295N	1	59264702G9	Washer	
890N	1	4367273500	Flywheel	
895N	1	4367264010	Belt	
897N	1	4367104700	Retainer	
900N	1	3483164020	Adjuster	
905N	2	51300310B0	P.H. TAP. Screw	P3 x 10

10.7 [P04-99] PARTS ASSEMBLED ON THE TOP OF THE CHASSIS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
002N	1	4367105700	Chassis	
071N	1	4367354090	Lever	
072N	1	4367354120	Lever	
076N	1	4367002700	Arm	
110N	1	4367004700	Table	
130N	1	4367004710	Table	
140N	1	4367002730	Arm	
143N	1	4367001510	Idler	
146N	1	59020805G9	Washer	
147N	1	4367118040	Spacer	
185N	1	4367354770	Lever	
195N	1	4367002050	Arm	
196N	1	4367115130	Spring	
201N	1	4367354080	Lever	
202N	1	4367115070	Spring	
235N	2	4367067010	Cap	
236N	2	4367263010	Brake	
245N	1	51382606P0	P.H. TAP. Screw	P2.6 x 6
253N	1	4367115310	Spring	
268N	1	4367115210	Spring	
285N	1	64002500R0	RG Ring, E Type	
286N	1	64001500R0	RG Ring, E Type	
290N	2	59020402G9	Washer	
300N	1	4367354110	Lever	
502N	1	4367002090	Arm	
503N	1	4367354150	Lever	
504N	1	4367115320	Spring	
506N	1	4367056050	Buffer	
507N	1	4367055030	Collar	
508N	1	4367055040	Collar	
870N	1	4367112190	Shaft	
871N	1	64000300R0	RG Ring, E Type	
916N	1	4384258010	Hook	
917N	1	4384115010	Spring	
918N	1	4384002010	Arm	
919N	1	4384160010	Bracket	
920N	2	4384055020	Collar	
921N	2	51382608P0	P.H. TAP. Screw	P2.6 x 8
922N	2	51060205A0	P.H.M. Screw	P2 x 5
002H	1	3484052010	Counter	
003H	1	4367264020	Belt	
004H	2	51060316A9	P.H.M. Screw	P3 x 16
S001	1	SM01010430	Mini Switch	

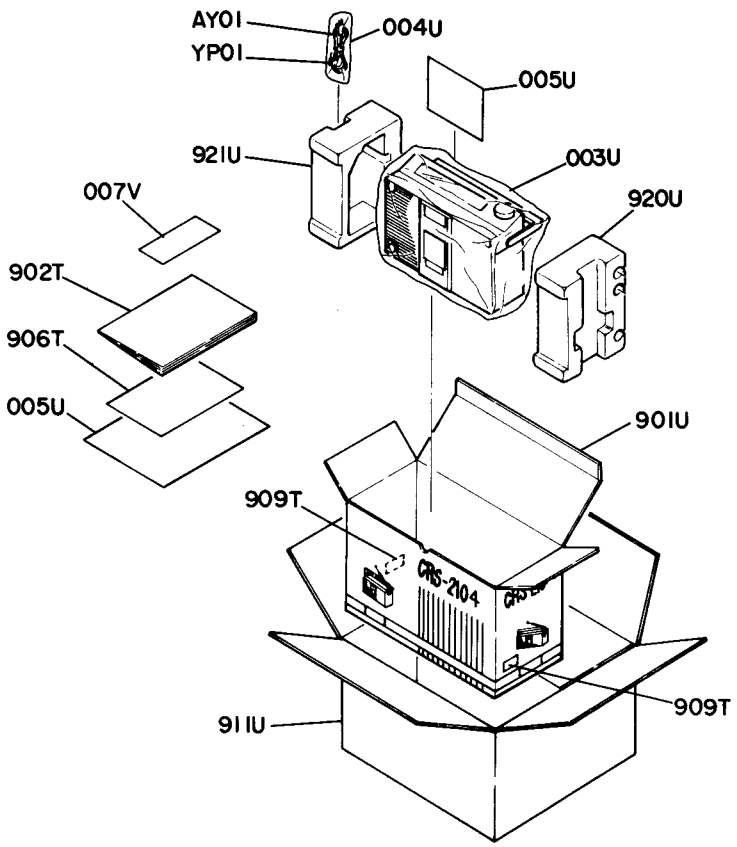
10.8 [P05-99] PARTS ASSEMBLED ON THE REVERSE OF THE CHASSIS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
009N	1	4367112080	Shaft
061N	1	4367354070	Lever
070N	1	4367354060	Lever
085N	1	4367051700	Guide
095N	1	4367354760	Lever
175N	1	4367002723	Arm
190N	1	4367118030	Spacer
212N	1	4367264030	Belt
226N	1	4367112180	Shaft
227N	1	4367051040	Guide
228N	2	4367055023	Collar
229N	2	5128031480	B.H.TAP. Screw B3 x 14
240N	1	51610205A0	Set Screw, E.P. Type 2 x 5
241N	3	4367259020	Bushing
242N	3	4367112150	Shaft
252N	1	4367115080	Spring
258N	1	4367056040	Buffer
259N	1	4367056030	Buffer
260N	1	4367115240	Spring
261N	1	4367115090	Spring
262N	1	4367115120	Spring
263N	1	4367115250	Spring
264N	1	4367115340	Spring
265N	1	4367115270	Spring
266N	2	4367115282	Spring
285N	1	64002500R0	RG Ring, E Type
286N	1	64001500R0	RG Ring, E Type
287N	4	64000300R0	RG Ring, E Type
305N	1	4367058010	Gear
306N	1	59046501G9	Washer

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
310N	2	4367056050	Buffer
403N	1	4367115210	Spring
404N	1	4367112134	Shaft
405N	1	4367054032	Cam
406N	1	4367115140	Spring
407N	1	59020805G9	Washer
408N	1	64001500R0	RG Ring, E Type
410N	1	4367254040	Pin
411N	1	4367160023	Bracket
505N	1	4367118020	Spacer
510N	1	4367002080	Arm
511N	1	4367115150	Spring
820N	1	4367054010	Cam
821N	1	4367054020	Cam
828N	1	4367262020	Pulley
875N	1	4367001700	Idler
908N	1	4380115080	Spring
910N	1	4367112060	Shaft
915N	1	4367115280	Spring
036F	2	5128030880	B.H. TAP. Screw B3 x 8
037F	2	5128031280	B.H. TAP. Screw B3 x 12
M001	1	MM1090080	D.C. Motor

10.9 [H01-99] PACKING MATERIALS



REF. DESIG.	QTY N	PART NO.	DESCRIPTION
003U	1	9011535400	Polyethy Bag
004U	1	9011020010	Polyethy Bag
005U	1	9011825010	Polyethy Bag
901U	1	4240801010	Packing Case
911U	1	4240805010	Master Carton
920U	1	4210809010	Cushion
921U	1	4210809020	Cushion
902T	1	4240851310	Instructions
906T	1	9560000090	Hang Tag
909T	2	9526019010	Serial No. Cord

REF. DESIG.	QTY N	PART NO.	DESCRIPTION
007V	1	4136071010	Cleaner
YP01	2	YP01000280	Plug
AY01	1	ZC01805010	AC Power Cord

(W01-99)	Assembly and Wiring
(T01-99)	Adjustment
(X01-00)	Correction

10.10 ELECTRICAL PARTS LIST

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P100-MAIN CIRCUIT BOARD
P100	1	YG42400010	P.W. Board, Main
	1	ZZ42408010	P.W. Board, Assembly
			P100-CAPACITORS
C103	1	DK18103010	Ceramic, 0.01μF, +80% −20%
C104	1	DK17102010	Ceramic 0.001μF, ±20%, 50V
C105	1	DD12070010	Ceramic 7pF, ±1pF
C106	1	DD15200010	Ceramic 20pF, ±10%
C107	1	DK18203020	Ceramic, 0.02μF +80% −20%
C108	1	CP22400210	Variable, PVC 330pF x 2, 20pF x 2
C109	1	DD16150030	Ceramic 15pF, ±10%, 50V
C110	1	DD16150030	Ceramic 15pF, ±10%, 50V
C111	1	DK18203010	Ceramic 0.02μF, +80% −20%
C112	1	DD12050010	Ceramic 5pF, ±1pF
C113	1	DK18403020	Ceramic, 0.04μF, +80% −20%
C114	1	DD15300010	Ceramic 30pF, ±5%, 50V
C115	1	DD12070030	Ceramic 0.7pF, ±1pF 50V
C126	1	DK18203020	Ceramic 0.02μF, 50V
C128	1	DD15300020	Ceramic 30pF, ±5%, 50V
C129	1	DF16104010	Film 0.1μF, ±10%, 50V
C130	1	DK18203020	Ceramic 0.02μF, +100% −0, 50V
C131	1	DD12050010	Ceramic 5pF, ±1pF
C132	1	CT21600010	Trimming 16pF x 2
C134	1	DD12100060	Ceramic 10pF, ±1pF
C137	1	DK18203020	Ceramic 0.02μF, +80% −20%
C138	1	DK18103010	Ceramic 0.01μF, ±20%
C139	1	DK18403020	Ceramic 0.04μF, +80% −20%
C140	1	DK18203020	Ceramic 0.02μF, +80% −20%
C141	1	DK18203020	Ceramic 0.02μF, +80% −20%
C142	1	DK17502010	Ceramic 0.005μF
C143	1	DK18103010	Ceramic 0.01μF, ±20%
C144	1	DF17222010	Film 0.0022μF, ±20%
C145	1	DF55331090	Film 330pF, ±5%
C146	1	DD16150030	Ceramic 15pF, ±10%
C147	1	DF55151090	Film 150pF, ±5%
C149	1	DD16600010	Ceramic 60pF, ±10%, 50V
C150	1	DF65432010	Film 0.0043μF, ±5%, 50V
C151	1	DD15400010	Ceramic 40pF, ±5%, 50V
C201	1	DK18203030	Ceramic, 0.02μF, +80% −20%, 50V
C203	1	EA10601090	Elect 10μF, 10V
C204	1	DK18403020	Ceramic, 0.04μF, +80% −20%, 25V
C205	1	DK18403020	Ceramic, 0.04μF, +80% −20%, 25V
C206	1	DK18403020	Ceramic, 0.04μF, +80% −20%, 25V
C207	1	DK18403020	Ceramic, 0.04μF, +80% −20%, 25V
C208	1	DK18403020	Ceramic, 0.04μF, +80% −20%, 25V
C209	1	DD16501010	Ceramic 500pF, ±10%, 50V
C210	1	DK18103010	Ceramic 0.01μF +100% −0, 50V
C211	1	DD16501010	Ceramic 500pF, ±10%, 50V
C212	1	DK18403020	Ceramic, 0.04μF, +80% −20%, 25V
C213	1	EA10505090	Elect 1μF, 50V
C214	1	EA10801090	Elect 1000μF, 10V
C215	1	EA33502590	Elect 3.3μF, 25V
C216	1	EA47502590	Elect 4.7μF, 25V
C218	1	EA10601690	Elect 10μF, 16V

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
C220	1	DF16403010	Film 0.04μF, ±10%, 50V
C221	1	DF16403010	Film 0.04μF, ±10%, 50V
C231	1	DK18103010	Ceramic, 0.01μF, +100% −0, 50V
C233	1	DK18403020	Ceramic, 0.04μF, +80% −20%, 25V
C234	1	EA47503590	Elect 4.7μF, 35V
C235	1	EA33502590	Elect 3.3μF, 25V
C236	1	DK18103010	Ceramic, 0.01μF, +100% −0, 50V
C237	1	DF16223010	Film 0.022μF, ±10%, 50V
C238	1	DK18203030	Ceramic, 0.02μF, +80% −20%, 50V
C239	1	DF17103010	Film 0.01μF, ±20%, 50V
C240	1	EA33601090	Elect 33μF, 10V
C242	1	EA33502590	Elect 3.3μF, 25V
C243	1	DF17472010	Film 0.047μF, 50V
C244	1	DF17103010	Film 0.01μF, ±20%
C245	1	DF17103010	Film 0.01μF, ±20%
C246	1	DF17403010	Film 0.04μF, ±20%, 50V
C261	1	EA10701090	Elect 100μF, 10V
C262	1	EA22502590	Elect 2.2μF 25V
C263	1	DF16473010	Film 0.047μF
C264	1	EE33405040	Elect 0.33μF 50V
C265	1	EA10505090	Elect 1μF 50V
C266	1	DF55471010	Film 470pF, ±5%
C269	1	EA10505090	Elect 1μF, 50V
C270	1	EA22502590	Elect 2.2μF 25V
C271	1	DF17683010	Film 0.068μF, ±20%, 50V
C273	1	DD15301020	Ceramic 300pF, ±5%, 50V
C281	1	EA10701690	Elect 100μF, 16V
C282	1	EA10801690	Elect 1000μF, 16V
C283	1	DK18203020	Ceramic 0.02μF
C284	1	DK18203020	Ceramic 0.02μF
C285	1	DK18203020	Ceramic 0.02μF, 50V
C286	1	DK18503010	Ceramic 0.05μF, 50V
C302	1	DF16472010	Film 0.0047μF, ±10%
C303	1	DF16332010	Film 0.0033μF, ±10%
C304	1	DF16682010	Film 0.0068μF, ±10%
C305	1	DF16123010	Film 0.012μF, ±10%, 50V
C306	1	DF16683010	Film 0.068μF, 25V
C398	1	EA22701090	Elect 220μF, 10V
C402	1	DF16472010	Film 0.0047μF, ±10%
C403	1	DF16332010	Film 0.0033μF, ±10%
C404	1	DF16682010	Film 0.0068μF, ±10%
C405	1	DF16123010	Film 0.012μF, ±10%, 50V
C406	1	DF16683010	Film 0.068μF, 25V
C501	1	EE10405040	Elect 0.1μF, 50V
C502	1	EA22701690	Elect 220μF, 16V
C503	1	EA10505090	Elect 1μF, 50V
C504	1	DF16102010	Film 0.001μF, ±10%, 50V
C505	1	EA10701090	Elect 100μF, 10V
C506	1	DF16272010	Film 2700pF, ±20%, 50V
C507	1	DF65451010	Film 450pF, ±5%, 50V
C508	1	DF16102010	Film 1000pF, ±10%, 50V
C509	1	EA47503590	Elect 4.7μF, 25V
C510	1	EA47503590	Elect 4.7μF, 25V
C511	1	EA22601090	Elect 22μF, 10V
C512	1	EA47601090	Elect 47μF, 10V

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
C513	1	DF16102010	Film	0.001μF, ±10% , 50V
C514	1	DK17472300	Ceramic	0.0047μF, ±20%, 50V
C515	1	DK17472300	Ceramic	0.0047μF, ±20%, 50V
C516	1	EA10601690	Elect	10μF, 16V
C518	1	EA47503590	Elect	4.7μF, 25V
C519	1	EA47503590	Elect	4.7μF, 25V
C520	1	EA47405090	Elect	0.47μF, 50V
C521	1	DF16683010	Film	0.068μF, ±10%, 50V
C526	1	DD16501010	Ceramic	500pF ±10%
C527	1	DF16682010	Film	6800pF, ±10%
C528	1	DD15470010	Ceramic	47pF, ±5%
C529	1	DF16103010	Film	0.01μF, ±10%
C530	1	DF16223010	Film	0.022μF, +100%–0
C531	1	DD15511360	Ceramic	510pF, ±5%, 50V
C532	1	DF55151510	Film	150pF, ±5%, 100V
C533	1	DD15101370	Ceramic	100pF, ±5%, 50V
C534	1	DD15101370	Ceramic	100pF, ±5%, 50V
C551	1	EA47503590	Elect	4.7μF, 25V
C552	1	EA47601690	Elect	47μF, 16V
C553	1	EA10701690	Elect	100μF, 16V
C554	1	DD16501010	Ceramic	500pF, ±10%
C555	1	DF16223010	Film	0.022μF, ±10%
C556	1	EA10701690	Elect	100μF, 16V
C557	1	EA47701690	Elect	470μF, 16V
C558	1	DF17224010	Film	0.22μF, ±20%
C559	1	DF16682010	Film	0.0068μF, ±10%, 50V
C581	1	EA10601690	Elect	10μF, 16V
C582	1	EA10505090	Elect	1μF, 50V
C583	1	EA47701690	Elect	470μF, 16V
C586	1	DF16562510	Film	0.0056μF, ±10%, 100V
C587	1	EE22701650	Elect	220μF, 16V
C588	1	EA33701690	Elect	330μF, 16V
C589	1	EA47701690	Elect	470μF, 16V
C590	1	EA22701690	Elect	220μF, 16V
C591	1	EA10701690	Elect	100μF, 16V
C592	1	DK18403320	Ceramic	0.04μF, 50V
C593	1	DK16102300	Ceramic	1000pF, ±10%, 50V
C601	1	EE10405040	Elect	0.1μF, 50V
C602	1	EA22701690	Elect	220μF, 16V
C603	1	EA10505090	Elect	1μF, 50V
C604	1	DF16102010	Film	0.001μF, ±10% 50V
C605	1	EA10701090	Elect	100μF 10V
C606	1	DF16272010	Film	2700pF, ±10%, 50V
C607	1	DF65451010	Film	450pF, ±5%, 50V
C608	1	DF16102010	Film	1000pF, ±10%, 50V
C609	1	EA47503590	Elect	4.7μF, 25V
C610	1	EA47503590	Elect	4.7μF, 25V
C611	1	EA22601090	Elect	22μF, 10V
C612	1	EA47601090	Elect	47μF, 10V
C613	1	DF16102010	Film	0.001μF, ±10%, 50V
C614	1	DK17472300	Ceramic	0.0047μF, ±20%, 50V
C615	1	DK17472300	Ceramic	0.0047μF, ±20%, 50V
C616	1	EA10601690	Elect	10μF, 16V
C618	1	EA47503590	Elect	4.7μF, 25V
C619	1	EA47503590	Elect	4.7μF, 25V

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
C620	1	EA47405090	Elect	0.47μF, 50V
C621	1	DF16683010	Film	0.068μF, ±10%, 50V
C626	1	DD16501010	Ceramic	500pF, ±10%
C627	1	DF16682010	Film	6800pF, ±10%
C628	1	DD15470010	Ceramic	47pF, ±5%
C629	1	DF16103010	Film	0.01μF, ±10%
C630	1	DF16223010	Film	0.022μF, +100% –0 50V
C631	1	DD15511360	Ceramic	510pF, ±5%, 50V
C632	1	DF55151510	Film	150pF, ±5%, 100V
C633	1	DD15101370	Ceramic	100pF, ±5%, 50V
C634	1	DD15101370	Ceramic	100pF, ±5%, 50V
C651	1	EA47503590	Elect	4.7μF, 25V
C652	1	EA47601690	Elect	47μF, 16V
C653	1	EA10701690	Elect	100μF, 16V
C654	1	DD16501010	Ceramic	500pF, ±10%
C655	1	DF16223010	Film	0.022μF, ±10%
C656	1	EA10701690	Elect	100μF, 16V
C657	1	EA47701690	Elect	470μF, 16V
C658	1	DF17224010	Film	0.22μF, ±20%
C659	1	DF16682010	Film	0.0068μF, ±10%, 50V
			P100-RESISTORS	
			(All Reristors are ±5% and 1/4W)	
R101	1	GD05561140	560Ω	
R102	1	GD05103140	10KΩ	
R103	1	GD05103140	10KΩ	
R104	1	GD05821140	820Ω	
R105	1	GD05100140	10Ω	
R107	1	GD05221140	220Ω	
R108	1	GD05103140	10KΩ	
R109	1	GD05101140	100Ω	
R110	1	GD05102140	1KΩ	
R111	1	GD05105140	1MΩ	
R115	1	GD05561140	560Ω	
R116	1	GD05102140	1KΩ	
R117	1	GD05822140	8.2KΩ	
R118	1	GD05221140	220Ω	
R131	1	GD05103140	10KΩ	
R132	1	GD05103140	10KΩ	
R135	1	GD05221140	220Ω	
R136	1	GD05332140	3.3KΩ	
R137	1	GD05332140	3.3KΩ	
R138	1	GD05122140	1.2KΩ	
R139	1	GD05472140	4.7KΩ	
R140	1	GD05101140	100Ω	
R141	1	GD05821140	820Ω	
R142	1	GD05471140	470Ω	
R143	1	GD05470140	47Ω	
R144	1	GD05821140	820Ω	
R145	1	GD05101140	100Ω	
R201	1	GD05680140	68Ω	
R202	1	GD05104140	100KΩ	
R203	1	GD05331140	330Ω	
R204	1	GD05104140	100KΩ	
R205	1	GD05683140	68KΩ	
R206	1	GD05241140	240Ω	
R207	1	GD05272140	2.7KΩ	
R208	1	GD05822140	8.2KΩ	

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
R209	1	GD05334140	330KΩ
R213	1	GD05125140	1.2MΩ
R231	1	GD05103140	10KΩ
R233	1	GD05123140	12KΩ
R234	1	GD05183140	18KΩ
R235	1	GD05102140	1KΩ
R236	1	GD05152140	1.5KΩ
R237	1	GD05121140	120Ω
R238	1	GD05333140	33KΩ
R239	1	GD05102140	1KΩ
R240	1	GD05333140	33KΩ
R241	1	GD05152140	1.5KΩ
R242	1	GD05331140	330Ω
R243	1	GD05332140	3.3KΩ
R244	1	GD05332140	3.3KΩ
R261	1	GD05562140	5.6KΩ
R262	1	GD05102140	1KΩ
R263	1	GD05183140	18KΩ
R266	1	GD05104140	100KΩ
R267	1	GD05331140	330Ω
R268	1	GD05104140	100KΩ
R268	1	RA01030260	Trimming, 10KΩ (B)
R270	1	RA01020110	Trimming, 1KΩ (B)
R281	1	GD05330140	33Ω
R282	1	GD05471140	470Ω
R283	1	GD05470140	47Ω
R301	1	GD05332140	3.3KΩ
R302	1	GD05102140	1KΩ
R331	1	GD05068140	6.8Ω
R401	1	GD05332140	3.3KΩ
R402	1	GD05102140	1KΩ
R501	1	GD05153140	15KΩ
R502	1	GD05332140	3.3KΩ
R503	1	GD05103140	10KΩ
R504	1	GD05221140	220Ω
R505	1	GD05471140	470Ω
R506	1	GD05153140	15KΩ
R507	1	GD05471140	470Ω
R508	1	GD05223140	22KΩ
R509	1	GD05102140	1KΩ
R510	1	GD05333140	33KΩ
R511	1	GD05153140	15KΩ
R512	1	RA01040110	Trimming, 100KΩ (B) VR
R513	1	GD05680140	68Ω
R514	1	GD05332140	3.3KΩ
R516	1	GD05102140	1KΩ
R517	1	GD05392140	3.9KΩ
R518	1	GD05682140	6.8KΩ
R519	1	GD05100140	10Ω
R520	1	GD05105140	1MΩ
R521	1	GD05103140	10KΩ
R522	1	GD05331140	330Ω
R523	1	GD05331140	330Ω
R524	1	GD05562140	5.6KΩ

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
R525	1	GD05102140	1KΩ
R526	1	GD05222140	2.2KΩ
R527	1	GD05104140	100KΩ
R529	1	GD05822140	8.2KΩ
R530	1	GD05104140	100KΩ
R531	1	GD05105140	1MΩ
R551	1	GD05391140	390Ω
R581	1	GD05100140	10Ω
R582	1	GD05471140	470Ω
R585	1	GD05047140	4.7Ω
R591	1	GD05102140	1KΩ
R592	1	RA05030090	Trimming, 50KΩ
R601	1	GD05153140	15KΩ
R602	1	GD05332140	3.3KΩ
R603	1	GD05103140	10KΩ
R604	1	GD05221140	220Ω
R605	1	GD05471140	470Ω
R606	1	GD05153140	15KΩ
R607	1	GD05471140	470Ω
R608	1	GD05223140	22KΩ
R609	1	GD05102140	1KΩ
R610	1	GD05333140	33KΩ
R611	1	GD05153140	15KΩ
R612	1	RA01040110	Trimming, 100K (B) VR
R613	1	GD05680140	68Ω
R614	1	GD05332140	3.3KΩ
R616	1	GD05102140	1KΩ
R617	1	GD05392140	3.9KΩ
R618	1	GD05682140	6.8KΩ
R619	1	GD05100140	10Ω
R620	1	GD05105140	1MΩ
R621	1	GD05103140	10KΩ
R622	1	GD05331140	330Ω
R623	1	GD05331140	330Ω
R624	1	GD05562140	5.6KΩ
R625	1	GD05102140	1KΩ
R626	1	GD05222140	2.2KΩ
R627	1	GD05104140	100KΩ
R629	1	GD05822140	8.2KΩ
R630	1	GD05104140	100KΩ
R631	1	GD05105140	1MΩ
R651	1	GD05391140	390Ω

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P100-SEMICONDUCTORS
Q101	1	HT310471B0	Transistor 2SC1047 (B)
Q102	1	HT313591B0	Transistor 2SC1359 (B)
Q103	1	HT310471C0	Transistor 2SC1047
Q104	1	HT20011050	Diode 1S1555
Q105	1	HT20011050	Diode 1S1555
Q106	1	HD20011050	Diode 1S1555
Q107	1	HD40009090	Varicap 1S2688B
Q108	1	HD20011050	Diode 1S1555
Q131	1	HT308291B0	Transistor 2SC829 (B)
Q132	1	HT308291C0	Transistor 2SC829
Q201	1	HC10027010	IC HAI1251 FM-AM IF IC
Q202	1	HD10001050	Diode 1N60 AM DET
Q203	1	HD10001050	Diode 1N60 AM MET RECT.
Q261	1	HC10030010	IC HA11227 MPX IC
Q262	1	HI10007020	L.E.D. LN26D FM. STEREO IND.
Q281	1	HT404711L0	Transistor 2SD471
Q282	1	HD30009060	Zener RD6.2EB
Q501	1	HC10015060	IC MPC1158H2 (EQ IC)
Q502	1	HC10024050	IC TA7140P (LINE IC)
Q503	1	HT317400R0	Transistor 2SC1740 (R)
Q504	1	HD20011050	Diode 1S1555
Q505	1	HD20011050	Diode 1S1555
Q506	1	HD20011050	Diode 1S1555
Q551	1	HC10005210	IC BA521S POWER IC
Q591	1	HT404711L0	Transistor 2SD 471
Q601	1	HC10015060	IC MPC1158H2 (EQ IC)
Q602	1	HC10024050	IC TA7140P (LINE IC)
Q603	1	HT317400R0	Transistor 2SC1740 (R)
Q604	1	HD20011050	Diode 1S1555
Q605	1	HD20011050	Diode 1S1555
Q606	1	HD20011050	Diode 1S1555
Q651	1	HC10005210	IC BA521S POWER IC

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P100-MISCELLANEOUS
F101	1	FF39800010	L.C. Filter FM RF
F201	1	FF11070120	Ceramic Filter SFE10.7MS3
J101	1	YP10001090	Plug
J102	1	YP10001090	Plug
J103	1	YP10001090	Plug
J126	1	YP10001090	Plug
J501	1	BY01070012	Jack Jack Board
J502	1	YJ11000180	Jack Din Socket
J552	1	YP10001090	Plug
J553	1	YP10001090	Plug
J554	1	YP10001090	Plug
J581	1	YP10001090	Plug
L102	1	LA70258020	Ant Coil FM RF
L103	1	LC16820020	Choke Coil 6.8μH
L105	1	LA70258010	Ant Coil FM OSC
L131	1	LF11200613	Ant Coil MW. LW Bar Ant
L133	1	LA70033010	Ant Coil SW
L135	1	LO70033090	OSC Coil MW OSC
L136	1	LO70033100	OSC Coil LW OSC
L137	1	LO70033120	OSC Coil SW OSC
L201	1	LI70018010	I.F.T. FM IFT
L202	1	LI70038160	I.F.T. FM DET
L203	1	LC11830010	Choke Coil FM Phase Protect
L231	1	LI70243030	I.F.T. AM IFT
L232	1	LI70033060	I.F.T. AM IFT
L301	1	LC22260070	Choke Coil 22mH
L401	1	LC22260070	Choke Coil 22mH
L501	1	LC22260500	Choke Coil 22mH
L581	1	LC22750500	Choke Coil 2.7mH
L582	1	LC14730040	Choke Coil 47mH
L601	1	LC22260500	Choke Coil 22mH
S101	1	SC10040010	Switch Band
S501	1	SS09020070	Slide Switch Rec/Play
S601	1	SS06020360	Slide Switch Rec/Play
T501	1	TC10200040	OSC Transformer
			P200-SWITCH CIRCUIT BOARD
P200	1	YF42400010	P.W. Board, Switch
	1	ZZ42407010	P.W. Board Assembly
			P200-CAPACITORS
C351	1	DF16102520	Film 0.001μF ±10% 100V
C352	1	DF16272510	Film 2700pF ±10% 100V
			P200-RESISTORS (All Resistors are ±5% and 1/4W)
R351	1	GD05272140	2.7KΩ
R353	1	GD05183140	18KΩ
R354	1	GD05273140	27KΩ
R355	1	GD05182140	1.8KΩ
R356	1	RA05030090	Trimming 50KΩ (B) VR
R357	1	GD05333140	33KΩ
R358	1	GD05068140	6.8Ω
R451	1	GD05272140	2.7KΩ
R453	1	GD05183140	18KΩ
R454	1	GD05273140	27KΩ

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P200-MISCELLANEOUS
J401	1	YP10001800	Plug
S352	1	SC04030040	Switch AFC (4 – 3)
S353	1	SC04030040	Switch Mono-Stereo (4 – 3)
S354	1	SC08030020	Switch Function (8 – 3)
			P400-POWER CIRCUIT BOARD
P400	1	YF42400020	P.W. Board, Switch
	1	ZZ42408020	P.W. Board Assembly
			P400-CAPACITORS
C901	1	EA22801690	Elect 2200μF 16V
C902	1	EA22801690	Elect 2200μF 16V
C903	1	DK17103010	Ceramic 0.01μF ±20%
C904	1	DK17103010	Ceramic 0.01μF ±20%
C905	1	DK17103010	Ceramic 0.01μF ±20%
C906	1	DK17103010	Ceramic 0.01μF ±20%
			P400-SEMICONDUCTORS
Q901	1	HD20023100	Diode 10E-1
Q902	1	HD20023100	Diode 10E-1
Q903	1	HD20023100	Diode 10E-1
Q904	1	HD20023100	Diode 10E-1
			P400-MISCELLANEOUS
F901	1	FS10200800	Fuse 2A
J901	1	YJ04000500	Jack AC Jack
J903	1	YJ08000200	Jack Fuse Holder
J904	1	YJ08000200	Jack Fuse Holder
J905	1	YP10001090	Plug
T901	1	TS15405040	Power Transf.
			P701-TONE CIRCUIT BOARD
P701	1	YK42101310	P.W. Board, Tone
	1	ZZ42101310	P.W. Board Assembly
			P701-CAPACITORS
C701	1	DF16103010	Film 0.01μF ±10% 50V
C702	1	DF16393010	Film 0.039μF ±10% 50V
C703	1	EE22405040	Elect 0.22μF 50V
C701	1	DF16103010	Film 0.01μF ±10% 50V
C802	1	DF16393010	Film 0.039μF ±10% 50V
C803	1	EE22405040	Elect 0.22μF 50V
			P701-RESISTORS **(All Resistors are ±5% and 1/4W)**
R701	1	GD05272140	2.7KΩ
R702	1	GD05471140	470Ω
R703	1	GD05272140	2.7KΩ
R704	1	GD05682140	6.8KΩ
R706	1	RM05030660	Variable 50KΩ (D)
R709	1	RM02030070	Variable 20KΩ (B)
R798	1	RK05030270	Variable 50KΩ (W)
R801	1	GD05272140	2.7KΩ
R802	1	GD05471140	470Ω
R803	1	GD05272140	2.7KΩ
R804	1	RA01030260	Trimming 10KΩ (B)

REF. DESIG.	Q'TY N	PART NO	DESCRIPTION
			P702-JACK CIRCUIT BOARD
P702	1	YK42101320	P.W. Board, Jack
	1	ZZ42101320	P.W. Board Assembly
			P702-RESISTORS **(All Resistors are ±5% and 1/4W)**
R751	1	GD05104140	100KΩ
R752	1	GD05473140	47KΩ
R851	1	GD05104140	100KΩ
R852	1	GD05473140	47KΩ
			P703-HEAD PHONE CIRCUIT BOARD
P703	1	YK42101330	P.W. Board, Head Phone
	1	ZZ42101330	P.W. Board Assembly
R799	1	RC10331120	Resistor 330Ω 1/2W
R899	1	RC10331120	Resistor 330Ω 1/2W
J791	1	YJ01001060	Jack Head Phone
R010		RC05125120	Resistor 1.2MΩ 1/2W